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FROM PLANTATION TO FACTORY DIRECT.

MR. VAN DER MARK, addressing the Society of Rubber Planters at Batavia, Java, thus pictures the interests of planters and manufacturers:

In the past, when Europe was the greatest consumer of our product and the world trade was centered in England, it was inevitable that all producers were drawn to London. Circumstances, however, have made vast changes, many even now uncalculable, and America is to-day the greatest consumer. In all probability the United States will keep the advantageous position gained through the war and may be expected to improve on it. This being the case, and we see no reason for doubt, the European market for our product will be principally a transito market.

Any transito market between producers and consumers is, in principle, expensive and unnecessary. It is to the interest of producers and manufacturers to eliminate all unnecessary links in the chain that binds them together, especially, whenever a direct contact becomes possible. The long, long way from the East through the West to the East again is simply of interest and advantage to the transito trade and middlemen always profit at the expense of producers and manufacturers. We have reason to believe that the revival of trade between us and Japan, America, and Australia will not be temporary but from the nature of things permanent and growing.

We rubber planters will cease to be dependent on Europe.

Evidences, plain and numerous, are at hand that a trade and center has been created which will carry weight and will continue to develop itself. This development will be healthy, not artificial, and opposition from elsewhere will be powerless to retard it. The difficulties confronting us will call forth higher energy and make us and our position stronger. All over the Indies preparations are being made to meet the changed circumstances, and for us rubber planters the time has come to obtain that position to which we have lawful title. It is our duty, gentlemen, to prepare the way and courageously attack self-interest and prejudice. We must get rid of our attachment to the old ruts to which the past has accustomed us, and break a new way, strong and powerful, for the attainment of higher aims.

The great interest we planters at Batavia have in coming into direct contact with our buyers, who are mostly all representing the manufacturer, cannot be overestimated. If Batavia becomes a prime market, you will meet the buyer personally, you can obtain information on many points at first hand, and you will in a short time become familiar with all his demands and qualifications. The buyer, on the other hand, will be able to visit your plantation and his cooperation will exercise an influence the results of which will be of utmost benefit to you.

As an instance of the great advantage of direct contact, I may mention the personal instructions given me by one of the largest purchasers of rubber at Batavia, which buys directly for the American manufacturers. The letter was in relation to the desire of the American Government to save tonnage by baling the rubber instead of following the old method of packing. The directions given in the letter and later explained and elucidated in conversation were so minute in all particulars that not a hitch occurred, and certainly to be able to get matters of this kind at first hand is of the greatest importance to planters.

This is only one instance showing conclusively what great interest you have in eliminating Europe and establishing directly your connections with your largest buyers.

RUBBER GOODS IN ENGLAND.

WHILE, on account of the war, the demand for a great many manufactured articles has decreased, the dismal prophecies made for the sporting goods trade have not been fulfilled. It was said that the small number of sportsmen left at home would be unable to take up much of the equipment on hand and traders felt serious apprehension when looking at their generously stocked shelves. But the woman chauffeur, conductor, letter-carrier, farmer and ammunition maker was followed by the woman sportsman with her cricket clubs, the forming of which was encouraged in many instances by the big firms and companies as a part of their welfare work. The women and the boys under 18 whose wages far exceed the pre-war earnings and who, therefore, are able and

willing to pay the higher prices, have made this year's business decidedly an excellent one.

The dealers in rubber toys, however, are unable to get much-needed supplies, and yet there is nothing to replace the goods that used to come from Germany. Colored balls, especially, would command stiff prices, but they are not to be obtained.

Leather used for soles in footwear is more and more being replaced by rubber to the great satisfaction of the wearer. One does not hear any more the old complaint: "The soles don't last." On the contrary, people begin to ask: "Will the upper last as long as the sole?"

The plans of the Government for manufacturing artificial limbs on an extensive scale are also contributing to the improvement and stimulation of a portion of the rubber trade. In other fields, notably in that part of the bicycle supply trade concerned with covers, tubes, etc., there is serious fear of an approaching shortage.

As to the tennis shoes and other light footwear, large quantities could be sold if they were available, but the outlook for increasing supplies is far from encouraging. Generally, rubber manufacturers are too busy with war necessities to handle other trades.

PICKING ON PONTIANAK.

ANDREW H. KING, who writes interestingly and often for "Chemical and Metallurgical Engineering," gives some surprising information concerning Pontianak in the August issue of that excellent journal. To avoid error we quote:

The supply of Pontianak is to-day almost exhausted. This is due solely to the wasteful and extremely primeval methods used by the natives in securing the gum. Where they might have tapped the trees and built up a steady business they felled and bled them at many different points. The method produced quick results but the procedure reminds one of the old fable about killing the goose that laid the golden egg. In 1909 a good grade of Ponti could be secured at 5 cents per pound. The market price is now around 30 cents per pound, making Ponti no longer a profitable purchase.

Did we say to avoid error? Accurately, it should be to correct errors.

The fact is that few Pontianak trees (*Dyera costulata*) are destroyed by native gatherers. The British and Dutch authorities long ago stopped all that. As for the supply being exhausted, the United States received 23,000,000 pounds in 1917. Schidrowitz figured that there were 160,000,000 pounds in Sarawak, the Dutch East Indies and the Federated Malay States. More than that amount has already been consumed, and Pontianak still arrives, or would if it were not war-time.

As for the price being around 30 cents per pound, with all respect, that seems high. Taking Bandjermassin as a typical grade, its average price for 1917 was 13 cents per pound; for the first eight months in 1918 it was 14 cents per pound. Mr. King's broker overcharged him.

"COMMERCIAL CAMOUFLAGE."

GERMAN rubber goods after the war are likely to bear American, English, French, Swedish or any trade-marks other than German. This is stated by the "Economic Gazette" of the Central Powers which thus advises German exporters:

After the war German trade will be possible only through neutral countries. All marks of German origin will, therefore, have to be obliterated from all wares exported. Considerations of international morality must be brushed aside.

It will be a very long-handled brush that will enable the German to get within reach of morality of any sort.

FISH-SCALE RUBBER.

THE inventor of fish-scale rubber, unless he be a very modest man, is likely to be dazzled by the bright light of publicity thrown upon him by "The Scientific American" and "The Literary Digest." Mention in such high-class publications is likely to cause him to add at least $1,000,000 to the asking price for the usual half interest. As a friend to all who strive to add to the world's supply of rubber whether it be natural or artificial, plantation or synthetic, we trust he will keep his head. Success in making rubber from fish-scales is but a beginning and he owes it to the world that he continue. It is evident that rubber made from the scales of the tender minnow will show neither the tensile strength or the resilience shown by that made from the fighting tarpon. He should, therefore, establish grades of fish scale rubber. Furthermore, as the pioneer scalyoptomist it is his duty to exploit scales to the uttermost. Fish are not the only scalebearers. Scales are abundantly found on bird and beast, at present waste material, perhaps recoverable, possibly rubbery. Then as a last resort come scalene triangles and the chromatic scale.

THE FACT THAT ONE IS AN EXPERT IN THE SALE OR use of a commodity does not prove complete knowledge of it. As an instance in point one of the old-time big operators in Caucho always sold it as "Cow chow," suggesting mixed pickles. This leads to the query as to whether the word "Joolatong" for Jelutong is not from a source, able commercially, but of indifferent philological attainments.

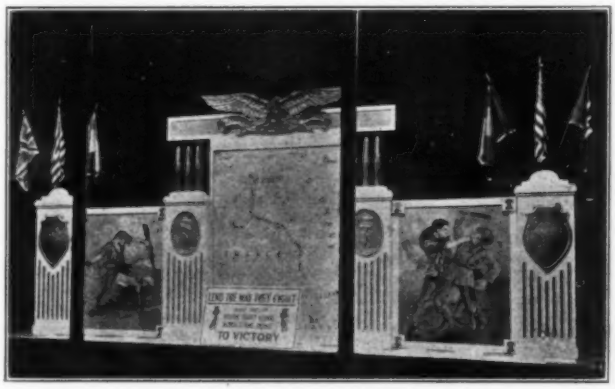
SEVERAL MONTHS AGO THE WAR DEPARTMENT authorized the statement that American gas masks were effective against all German gases. Major H. W. Duffy, of the British-American gas service, now declares that the fumes of American gas shells penetrate even the most modern of German masks. Apparently we have worsted the Hun at his own game both going and coming.

War News of the Rubber Industry.

The Fourth Liberty Loan. The Fourth Liberty Loan in Greater New York. Liberty Loan Publicity by the Rubber Industry. The Liberty Loan in Massachusetts. Government Officials in Charge of Rubber Matters. Quartermaster's Department Orders 1,305,680 Pairs of Rubber Boots. Limited Cargo Space for Exports to Russia. The Government Requests Nut-shells for Gas-mask Carbon. Details of Rubber Button Manufacture. The Bicycle Is Coming Back. Waterproof Garments Seized by the Government. Service Notes and Personals. Martyrs to the Cause of Liberty. Letters from the Front. New General License Does Not Affect Rubber. Procedure Governing Exports to Sweden.

THE FOURTH LIBERTY LOAN.

Final official totals of the Fourth Liberty Loan are not yet available, but Treasury Department estimates indicate that the 22,000,000 or more individual subscriptions will probably aggregate some $250,000,000 in excess of the $6,000,000,000 set as the amount of the loan. This result, coming as it has at a time when Allied victories everywhere and the peace overtures of the Central Powers are engaging the thought of the world, and when the epidemic of so-called Spanish influenza has discouraged pub-



THE GOODRICH COMPANY'S NEW YORK CITY WINDOW DISPLAY.

lic gatherings in many of the eastern states and in several cities closed theatres, churches, halls and schools throughout the drive, indicates more clearly than has any other loan the high resolve, united purpose, and inflexible determination of the American people that the world shall have freedom, justice, and an end of decisions by the sword. Most communities throughout the country "went over the top" with their quotas, and the rubber manufacturing centers are among those proudly flying their honor flags. The rubber industry as a whole took up its share of the task with the same whole-hearted spirit that has characterized its previous efforts, and to the generosity and enthusiasm of rubber companies, officials and employes alike, is due in no small measure the notable results achieved in New York, Ohio, New England, New Jersey, Pennsylvania, Illinois and elsewhere.

THE FOURTH LIBERTY LOAN IN GREATER NEW YORK.

The rubber industry of Greater New York demonstrated its belief in liberty's cause by a subscription of $10,775,050 to the Fourth Liberty Loan.

The success of this campaign is largely due to the organization created by the Liberty Loan Committee of the Rubber Industry comprising a Central Committee and Divisions, representing branches of the rubber industry. The following is a list of the total subscriptions and the accredited divisions:

TOTAL SUBSCRIPTIONS.

TIRE DIVISION.		
New York City	$5,832,018	
Brooklyn. By New York Committee	15,350	
Coupon books	90,850	$5,938,218
CRUDE RUBBER.		
New York City	1,266,800	
Brooklyn. By New York Committee	5,700	
Coupon books	1,450	1,273,950
BOOTS AND SHOES.		
New York City	883,016	
Brooklyn. By New York Committee	1,600	
Coupon books	1,550	886,166
MEDICAL GOODS.		
New York City	173,050	
Brooklyn. By New York Committee	9,550	
Coupon books	.....	182,600
MECHANICAL RUBBER GOODS.		
New York City	1,449,666	
Brooklyn. By New York Committee	1,500	
Coupon books	1,100	1,452,266
RECLAIMED RUBBER.		
New York City (only)	263,650	263,650
HARD RUBBER.		
New York City	490,650	
Brooklyn. By New York Committee	12,850	503,500
PUBLICITY.		
New York City (only)	15,000	15,000
		$10,515,350
Brooklyn (direct)		259,700
Grand total		$10,775,050

WINDOW DISPLAY OF THE UNITED STATES RUBBER CO., NEW YORK CITY.

LIBERTY LOAN PUBLICITY BY THE RUBBER INDUSTRY.

Much valuable publicity was donated by the rubber industry to promote the Fourth Liberty Loan. Several patriotic advertisers devoted space in the October issue of this journal to an appeal to buy bonds to the utmost. THE INDIA RUBBER WORLD

donated a double-page spread and "The Publishers' Page" to the same worthy cause.

Forty-two representative members of the rubber trade of New York City, including THE INDIA RUBBER WORLD, contributed full pages in leading daily newspapers to assist the Liberty Loan Committee of the Second Federal Reserve District.

THE LIBERTY LOAN IN MASSACHUSETTS.

In Massachusetts 80 rubber firms subscribed $2,998,000 and 20,818 employes subscribed $1,847,400, making a total of $4,845,400, or nearly double the corresponding subscription to the previous loan. The 100 per cent firms were the Acushnet Process Co., Aetna Rubber Co., Ajax Rubber Co., Akron Tire & Rubber Co., Athol Manufacturing Co., Atlantic Rubber Co., A. S. Brock Rubber Co., Eastern Rubber Co., Easthampton Rubber Thread Co., Firestone Tire & Rubber Co., Globe Rubber Works, The B. F. Goodrich Co., Worcester, Goodyear Tire & Rubber Co., Springfield, Haverhill Rubber Co., Oliver R. Howe, Lawrence Rubber Co., Mayflower Rubber Works, Monatiquot Rubber Works Co., Needham Tire Co., Panther Rubber Manufacturing Co., Para Rubber Co., Lewis E. Tracy.

The Fisk Rubber Co. employes made a remarkable record of 98.4 per cent, 3,037 out of 3,085 employes subscribing $346,850. When the influenza epidemic made it impossible to hold meetings to promote the bond-selling campaign, this important work was taken up by the weekly "Fisk Bulletin," and a daily edition was published.

Other firms having large working forces, whose employes made especially high records were the Converse Rubber Co., 93.6 per cent; Standard Woven Fabric Co., 93.3 per cent; Boston Rubber Shoe Co., 90.4 per cent; Hood Rubber Co., 85.1 per cent; Revere Rubber Co., 77.7 per cent; Plymouth Rubber Co., 74.1 per cent.; American Rubber Co., 81.9 per cent.

FOURTH LIBERTY LOAN SUBSCRIPTIONS OF THE RUBBER INDUSTRY OF MASSACHUSETTS.

Acushnet Process Co.	$25,500	Eastern Rubber Co.	5,450	Meade Rubber Co.	18,350
Aetna Rubber Co.	500	Easthampton Rubber Thread Co.	81,500	Monatiquot Rubber Works Co.	18,300
Ajax Rubber Co., Inc.	8,050	Elastic Tip Co.	1,550	Monnier, Ernest	1,500
Akron Tire & Rubber Co.	800	Ellis Cement Co.	300	Mutty Co., L. J.	114,100
American Rubber Co.	179,600	Everlastik, Inc.	66,650	Mystic Rubber Co.	1,000
Alden Rubber Co.	300			Needham Tire Co.	2,900
Appleton & Son, F. H.	11,500	Feinburg, David	4,000	New York Belting & Packing Co.	11,100
Apsley Rubber Co.	66,800	Ferdinand, L. W.	2,000	Owen Tire Co.	2,000
Archer Rubber Co.	39,000	Firestone Tire & Rubber Co. (Boston)	28,500	Panther Rubber Manufacturing Co.	10,850
Archer-Strauss Rubber Co.	24,400	Firestone Tire & Rubber Co. (Springfield)	2,550	Para Rubber Co.	850
Athol Manufacturing Co.	4,000	Fisk Rubber Co., The	1,740,000	Plymouth Rubber Co.	50,000
Atlantic Rubber Co.	1,500	Franklin Rubber Co.	4,450	Reading Rubber Manufacturing Co.	54,850
Avon Sole Co.	2,100	Garlock Packing Co.	1,400	Republic Rubber Co.	10,000
		Globe Rubber Works	2,200	Revere Rubber Co.	55,000
Back Bay Tire Co.	1,200	Goodrich Co., The B. F. (Springfield)	1,400	Rider, P. R.	5,300
Boston Blacking Co.	17,500	Goodrich Co., The B. F. (Worcester)	1,500	Ryan Ideal Stain Blacking Co.	5,000
Boston Rubber Shoe Co.	204,400	Goodyear Tire & Rubber Co., The (Springfield)	1,150	Sanford Mills	26,500
Boston Woven Hose & Rubber Co.	300,000	Gutta Percha & Rubber Manufacturing Co.	6,350	Simplex Wire & Cable Co.	25,000
Brock Rubber Co., A. S.	1,250			Standard Tire & Rubber Co.	10,600
		Hale Rubber Co., Alfred	2,750	Standard Woven Fabric Co.	29,350
Cambridge Rubber Co.	25,000	Hatch Co., H. S.	5,000	Stoughton Rubber Co.	28,900
Carr Co., F. S.	39,350	Hauthaway & Sons, C. L.	13,150	Stowe & Woodward	4,150
Carton Belting Co.	42,000	Haverhill Rubber Co.	500	Taunton Rubber Co.	750
C. C. C. Fire Hose Co.	4,200	Hazen-Brown Co.	450	Tracy, Lewis E.	8,000
Clapp Rubber Co., E. W.	53,650	Hood Rubber Co.	750,000	Tyer Rubber Co.	62,200
Clifton Manufacturing Co.	25,000	Howe, Oliver R.	250	United States Rubber Co. (Boston)	10,000
Colton Elastic Webbing Co., Geo. S.	25,000	Jacoby, Ernest	550	United States Rubber Co. (New England)	38,250
Converse Rubber Shoe	220,250	Kenlit Rubber Co.	1,050	United States Rubber Co. (Mechanical Division)	24,050
Crandall Packing Co.	700	Killion Rubber Co.	7,700	United States Rubber Co. (Springfield)	13,000
Crocker Rubber Co.	150	Lapworth & Sons, Wm.	6,050	United States Tire Co. (Boston)	28,500
		Lawrence Rubber Co.	650	United States Tire Co. (Worcester)	2,850
Danversport Rubber Co.	9,000	Lowell Insulated Wire Co.	21,000	Wood Elastic Webbing Co., J. W.	31,800
Davidson Rubber Co.	10,700	Mason, Joseph	100	Total	$4,845,400
		Mayflower Rubber Works	19,600		
		Mayo Co., Wm. F.	17,150		

GOVERNMENT OFFICIALS IN CHARGE OF RUBBER MATTERS.

The following list of government officials having to do with rubber control has been compiled by the secretary for the 1918 Year Book of The Rubber Association of America, Inc.

WAR INDUSTRIES BOARD.

Bernard M. Baruch, Chairman.

Judge Edwin B. Parker, Priorities Commissioner and Chairman of Priorities Committee.

George N. Peek, Commissioner of Finished Products.

TEXTILE DIVISION.

John W. Scott, director.

RUBBER AND RUBBER GOODS SECTION.

Harry T. Dunn, Chief.

Assistants—J. W. Rowland, H. E. Joy, J. C. Matlack, G. E. C. Kelly.

COTTON GOODS SECTION.

Spencer Turner, Chief.

CONSERVATION DIVISION.

A. W. Shaw, Chairman.

Melvin T. Copeland, Executive Secretary.

CHEMICALS DIVISION.

Charles H. MacDowell, Director.

SULPHUR AND PYRITES SECTION.

Wm. G. Woolfolk, Director.

ELECTRIC WIRE AND CABLE SECTION.

LeRoy Clark, Director.

MEDICAL SECTION.

Lt. Col. F. F. Simpson, Director.

RESOURCES AND CONVERSION SECTION.

Chas. A. Otis, Director.

WAR TRADE BOARD.

Clarence M. Woolley, Representative of the Secretary of Commerce.

Edwin F. Gay, Representative of the United States Shipping Board.

BUREAU OF IMPORTS.

Frederick B. Peterson, Director.

William E. Bruyn, Commercial Adviser.

Walter H. Dickerson, Trade Adviser for Rubber and Kindred Products.

E. B. Wilson, Counsel.

BUREAU OF EXPORTS.

C. A. Richards, Director.

BUREAU OF RESEARCH.
Arthur E. Swanson, Director.

WAR TRADE INTELLIGENCE BUREAU.
Paul Fuller, Jr., Director.

QUARTERMASTER'S DEPARTMENT ORDERS 1,305,680 PAIRS OF RUBBER BOOTS.

The Quartermaster's department of the United States Government has placed orders for hip boots and short boots with practically every footwear manufacturing concern, to be delivered on or before January 1, 1919. The order, which amounts to 1,305,680 pairs, is allotted as follows:

Apsley Rubber Co., 42,515 pairs of hip boots and 1,589 pairs of short boots; Beacon Falls Rubber Shoe Co., 45,016 pairs hip boots; 1,682 pairs short boots; Bourn Rubber Co., 18,757 pairs hip boots; 701 pairs short boots; Converse Rubber Shoe Co., 42,515 pairs hip boots and 1,588 pairs short boots; Firestone Tire & Rubber Co., 106,288 pairs hip boots and 3,971 pairs short boots; The B. F. Goodrich Co., 96,285 pairs hip boots and 3,597 pairs short boots; The Goodyear Tire & Rubber Co., 7,503 pairs hip boots and 280 pairs short boots; Hood Rubber Co., 331,369 pairs hip boots and 12,300 pairs short boots; La Crosse Rubber Co., 31,261 pairs hip boots and 1,168 pairs short boots; Lambertville Rubber Co., 10,004 pairs hip boots and 374 pairs short boots; Mishawaka Woolen Manufacturing Co., 85,631 pairs hip boots and 3,177 pairs short boots; United States Rubber Co., 433,988 pairs hip boots and 16,211 pairs short boots.

In addition to these there was awarded to the United States Rubber Co. the following out-sizes; 5,032 pairs of hip boots and 188 pairs of short boots, size 14, and 2,516 pairs of hip boots and 94 pairs of short boots, size 15.

LIMITED CARGO SPACE FOR EXPORTS TO RUSSIA.

The War Trade Board announces that a limited amount of cargo space may be available for shipments of all commodities from the Pacific Coast direct to Vladivostok. Applications for export licenses will now be considered, and in allocating space, preference will be given to material covered by licenses issued on or after October 7, 1918. Exporters are requested to file their applications with the Bureau of Exports, War Trade Board, Washington, D. C.

DETAILS OF RUBBER BUTTON MANUFACTURE.

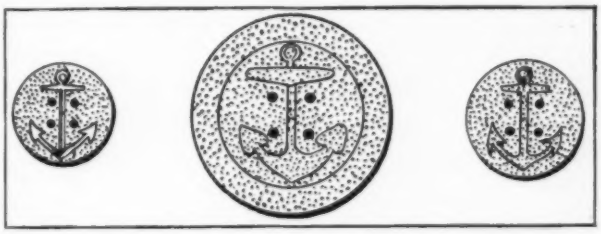
The largest factory in the world manufacturing rubber buttons is located at College Point, Long Island, New York. In normal times it makes dress buttons to the value of $60,000 a year, and some uniform buttons for the Navy. At present its entire output is being used for this latter purpose, so great is the demand, and this business amounted in 1917 to about $120,000. This concern employs about 85 workers, half of whom are women, and pays wages proportionate to those in other branches of the button industry. The process of manufacture[1] is described as follows:

The calendered plastic sheets of rubber are first vulcanized hard, and then warmed on steam tables and thus softened to facilitate the cutting. The blanks are then punched out by power presses, and allowed to harden before being sent to the button presses where they are again warmed on steam tables until they become soft; in this state they are patterned in heated, highly finished steel dies operated by hand presses. Two buttons are patterned in each die and press, and they must remain in the press until they are cool and the pattern is set. One operator manages eight of these presses, the feeding and emptying of which in turn require about the time needed for cooling the buttons. One operator can produce from 20 to 40 gross per day, according to size, with 8 presses. When the button leaves the press it is practically complete except for the holes which are drilled through it with semi-automatic machinery. This process requires great care and skill, in order to prevent the drilling from interfering with the pattern or finish of the button. Countersinking at the back of the button removes the sharp edge around the holes, and the removal of the sharp fin or film of rubber left around the outer edge is accomplished by the pressing operation. Rubber buttons are made in one piece, and usually have from two to four holes drilled from face to back. Very few are self-shank, and none are made with a metal shank.

Owing to the costly material used and to the many expensive labor operations through which the goods must pass, production is usually limited to dress buttons for women's and men's clothing, and chiefly to black, because of the impossibility of coloring hard rubber. The buttons range in size from 18 to 70 lines, and in price from 60 cents to $7.50 per gross. There is no foreign competition and none of these buttons are exported.

The manufacture of Navy buttons proceeds somewhat differently, however, for the reason that it is necessary for these buttons to be heat-proof and not liable to have their pattern obliterated or their shape drawn back to the blank form by the application of heat sufficient to soften the rubber, as will happen with buttons made by the method just described.

Navy buttons are not made from flat discs or blanks punched from sheets; the blanks are pressed to near the finished form from the plastic rubber and are partly hardened by vulcanization;



RUBBER BUTTONS FOR OUR NAVY.

they thus have the finished shape of the button but are without any pattern or design. They next go to the imprint dies in which they are shaped under hydraulic pressure between steam-heated plates and allowed to remain until fully cured; no amount of afterheating can obliterate the device imprinted on their faces. Each man operates a sufficient number of presses to permit filling, pressing, vulcanizing, cooling, and emptying, without any loss of time, and production averages about 20,000 small or 8,000 large buttons per day per man.

Unlike the buttons made by the other process, these heat-proof buttons do not come from the presses with polished surfaces; the polishing is a hand operation requiring the application, by means of a special holding tool, of each button separately to a rapidly revolving polishing buff. Before the buttons have arrived at this stage they have passed through several inspections and all imperfect ones have been rejected. After polishing they go through a final inspection and are then packed in boxes ready for delivery.

THE GOVERNMENT REQUESTS NUT-SHELLS FOR GAS-MASK CARBON.

Much has been published concerning the patriotic work of those who have entered the employ of the gas-mask manufacturers to meet the demand for workers to replace the men gone overseas. Now another opportunity for patriotic service presents itself to the whole people. The Government needs 1,000,000 pounds of nut-shells and fruit-pits daily for manufacturing charcoal to put into the gas-masks. At present it is able to purchase only about one-third of this amount, pending the completion of arrangements to secure supplies from the Far East.

The Chemical Warfare headquarters has renewed its appeal to the public to save all the pits and shells possible, as a charcoal better for the purpose is made from these than from wood. Many individuals probably think the few shells or pits they can save make no difference, but it is only another instance of the little making much when multiplied by the number of people in the whole country. Receptacles have been placed in public places where dried fruit pits and nut shells may be contributed, and the public is urged to co-operate in furnishing these materials toward the completion of the gas-masks which are so greatly needed by our soldiers overseas.

[1] From Tariff Information Series, No. 4, "The Button Industry."

THE BICYCLE IS COMING BACK.

The War Industries Board has put the stamp of approval on the bicycle as a healthful and virtually indispensable form of locomotion and a direct contributor to greater efficiency, both in manufacturing centers and the country. The present spirit of economy, the prevalence of good roads, and the durability of modern bicycle tires are all proving potent factors in restoring the bicycle to popular favor. All indications point to a big bicycle year in 1919, with consequent increase in the demand for rubber tires.

WATERPROOF GARMENTS SEIZED BY THE GOVERNMENT.

So great is the demand for raincoats and waterproof garments that about the middle of October the Government notified every manufacturer to cease delivering any such garments, sold or unsold, which were then in their possession or might be up to and including October 26, these goods to be shipped immediately to the Government for use in the cantonments in this country. It was the desire of the Government thus to secure a practical, immediate delivery of a million coats, but as near as can be ascertained about 275,000 were thus obtained. This is in no way to be confused with the regular contracts for coats for use of the Army overseas.

SERVICE NOTES AND PERSONALS.

Six men on October 22 undertook to fly a new Navy twin-motor dirigible balloon from Akron, Ohio, to Rockaway, N. Y. Among them were Lieut. Donald T. Hood, son of Frederic C. Hood, Hood Rubber Co., Watertown, Massachusetts, and Lieut. Ralph A. D. Preston, formerly in charge of the flying field of the Goodyear Tire & Rubber Co., Akron, Ohio. The first lap of the trip to Washington, District of Columbia, took nine hours and the rate of speed averaged 35 miles an hour. The dirigible flew over the city and made a landing at Anacostia aviation field for fuel, after which the trip was continued.

LIEUTENANT
R. A. D. PRESTON.

Private Joseph Pezzullo, who formerly worked for the Bourn Rubber Co., Providence, Rhode Island, has been severely wounded while serving with Company M, 328th Infantry, in France. He went to Camp Devens on October 3, 1917, and went overseas last spring.

Henry G. Tyer, president of the Tyer Rubber Co., Andover, Massachusetts, left October 22 for Camp Taylor, Kentucky, to enter the Artillery Officers' Training School. He is 33 years of age. His business associates presented him with an engraved wrist-watch previous to his departure.

O. M. Brede, assistant secretary of the Detroit section of the Society of Automotive Engineers, is now stationed at the Aviation Repair Depot, Dallas, Texas, and is a corporal in the 877th Aero Squadron. Mrs. Brede will perform his secretarial duties in his absence.

F. M. Morris, factory paymaster of the Firestone Tire & Rubber Co., Akron, Ohio, recently enlisted in the Quartermaster's department and is at Camp Meade, Washington.

A. H. Miner, formerly in the legal department of The B. F. Goodrich Co., Akron, Ohio, has secured a first lieutenant's commission in the Chemical Warfare Service (unattached) of the American Expeditionary Forces.

Lieutenant-Colonel Fred Garcin, son of Edward H. Garcin, of Edward H. Garcin & Co., 1790 Broadway, New York City, is doubtless the youngest lieutenant-colonel in the United States Army. He has been in the service for nine years and has taken every advancement in rank from second lieutenant to his present grade. His station is with the South Pacific Coast Artillery, District of San Francisco.

On his return from duty at the British Embassy in London, H. Stuart Hotchkiss was promoted to the rank of lieutenant-colonel and assigned to the Bureau of Aircraft Production as chief of the raw materials department in Washington, D. C.

John L. Ryan, a former traveling salesman out of Milwaukee for the Goodyear Tire & Rubber Co., Akron, Ohio, is now a sergeant in Company F, 340th Infantry, 85th Division, American Expeditionary Forces. Robert E. Lee, head of the department of labor of the Firestone Tire & Rubber Co., Akron, Ohio, has been elected Chief of the Personnel Staff of the Quartermaster General's office, Washington, District of Columbia. He will have charge of selecting men to fill positions in the United States Quartermaster's Department. Mr. Lee has been with the Firestone company for more than five years.

ROBERT E. LEE.

H. G. Zimmerman, formerly with the San Francisco branch of The B. F. Goodrich Co., Akron, Ohio, is now in service at Section Naval Base, United States Harbor Patrol, San Diego, Calif.

Diomedes Pereyra y M., a former employe in the art division of the advertising department of The B. F. Goodrich Co., Akron, Ohio, speaking French, Spanish and Portuguese in addition to English, is now in Uncle Sam's service as an interpreter in France. He comes from a well-known Spanish family in Bolivia.

Paul H. Loewenthal, of The Loewenthal Co., 23 Heyward street, Brooklyn, New York, has enlisted in the Tank Corps.

Lyman L. Weld, formerly of the advertising department of The B. F. Goodrich Co., Akron, Ohio, has arrived in France to assist A. B. Jones, recently placed in charge of French Red Cross supplies.

MARTYRS TO THE CAUSE OF LIBERTY.

CAPTAIN RALPH W. STEWART, an officer in the Fife & Forfar Yeomanry, was killed in action on September 2, 1918. He was a member of the firm of Ralph W. Stewart & Co. (Scottish Central Rubber Co.), manufacturing rubber boots and shoes, waterproofs, and general rubber goods at Dunfermline, Scotland.

Mrs. Jesse Sinclair of Providence, Rhode Island, has received word from the Canadian authorities that her husband was killed in action September 30, 1918. He worked for the Revere Rubber Co., in Chelsea, Massachusetts, for several years and later was a tire finisher for five years for the same company in its Providence plant. He enlisted in the British Canadian Infantry forces a year ago and went overseas last January. He leaves his widow and one daughter.

Ernest W. Crosley, formerly employed by the Glendale Elastic Fabric Co., Providence, Rhode Island, is reported to have been killed in action September 22. He was chief gunner in a machine gun battalion. Leaving Providence for Camp Dix on April 28 last, he went overseas in May, and was promoted to first-class private upon arrival in France.

The Cuban Tire & Rubber Co. (Compania Cubaña de Zunchos y Goma), Havana, Cuba, subscribed $10,000 to the Fourth Liberty Loan, doubling its subscription to the Third Liberty Loan.

LETTERS FROM THE FRONT

SERGEANT DUMONT SHELLS THE HUNS.

SOMEWHERE IN FRANCE.

DEAR ———:

Well, old top, I am still alive and unwounded, but just my good luck saved me so far, as we certainly have been shot up some. I have had the —— old shells strike within a few feet of me and I would fall to the ground when I heard them coming. You know you can hear them coming and then everyone falls to the ground or gets into his dug-out. Our battery has had pretty bad luck—35 casualties out of 210 men and we have been on an active front for only three weeks. Four have been killed and the balance wounded and gassed. We had two men put out of commission the second day we were here.

SERGEANT L. W. DUMONT.

On August 22 I was sitting eating my meal on a table that the boches had left in their retreat and had just got up to get second on the feed when along came a shell and knocked the table clean out of sight. I was congratulating myself on my escape with a number of the fellows, and was looking at the hole it made, when the Hun started bombarding us. It lasted about an hour and killed our battery commander and one other man. It also gassed about twenty others and killed twelve horses. Lieutenant Ried, who was killed, was in a dug-out, and he got hit by a direct shot which very few dug-outs can stand. These dug-outs are built in the ground by the men about four to five feet deep and covered with bags and dirt. You have to get into them like a rabbit. The hole is just large enough to get into and as I am by no means as large as I used to be, the hole does not have to be very big. After you are in, you have a few rats for company. This is what happened to me. I had left my cap inside of the dug-out one evening, as most of the time we wear steel helmets, and we were ordered to move the next afternoon. I started to pick up my cap when a rat ran out but did not seem very anxious to leave. I looked inside of my cap and I saw that it had eaten a hole in it and inside had made a home for itself and had left six young ones.

The next day after our battery commander was killed, another of our men was killed watering his horse along the road and I was ordered to take a detail of men and bury him. While I was burying him, we were under more or less of shell fire. We finished our job and had started back when a shell hit near us and two of my men were wounded. You ought to have heard me curse those Germans, as we had to carry the fellows about two miles to the Aid Station. The wounds did not amount to much as the men were hit in the leg. Our regiment has been hit pretty hard with casualties but expects to go to a rest camp soon and reorganize.

I am on duty now with the guns for twenty-four hours and it is some hard job as you have very little chance to sleep. Last night I had to fire a shot every fifteen minutes. On each shell I fired I wrote a name in chalk. I wrote yours, Pell's, Stiles', Ellis,' Obalski's, Sweeney's, Maurer's, Baird's, Miss Breaker's, Miss Rose's, Miss Lucey's and several others. We have twenty-four hours on and twenty-four hours off.

You should see the air fights. We have them every day and it certainly is a wonderful sight but with all the sights and excitement, would give an arm to be back on Broadway and back in business harness again. I have just this minute been told that one of our corporals has been killed; he was hit by a shell and the largest piece of him left was about two feet long. They say he is a terrible sight. This war is terrible. You never know from one second to another when you are going "West," and this corporal was just walking from the guns to the main camp. I sometimes wonder if any of us will get back. Sergeant Becker has gone to the Officers' Training School and Sergeant Welsh has been made a first sergeant. I can give you very little news about the way the war is going as you get more news in the States than we do. On our sector we have Fritzie worried. He is making a stand but before long we will soon send him on his way again.

Please remember me to all the bunch in the office and all inquiring friends.

Sincerely,

DUMONT.

NEW GENERAL IMPORT LICENSE DOES NOT AFFECT RUBBER.

Rubber crude, scrap and reclaimed; balata, jelutong, gutta percha. gutta siak; manufacturers of rubber; also raw cotton, cotton duck and yarn, are among the commodities specifically excluded from the terms of the new general import license P.B.F. No. 27, effective on and after October 1, 1918, covering the importation of all commodities into the United States from the United Kingdom, France, Italy, or their European or Mediterranean African possessions or protectorates.

PROCEDURE GOVERNING EXPORTS TO SWEDEN.

Arrangements have been made by the War Trade Board with the following import associations in Sweden to accept, on behalf of the Swedish importer actually interested, consignments of the articles mentioned below:

Rubber and rubber goods: Rubber Import Association.

Chemicals, technical oils, antimony, sulphide, sulphur, and similar commodities: Chemical Industries Import Associations.

Cotton Textiles: Textile Import Association.

Exporters in the United States, before filing applications for export licenses, must obtain from the prospective importer in Sweden advice that there has been issued by an appropriate importing association, or by the Statens Handel's Kommission, subsequent to June 28, 1918, a certificate covering the proposed consignment. The number of the certificate should be forwarded by the importer in Sweden to the American exporter. This number should be specified on Supplemental Information Sheet X—104, which must be duly executed and annexed to Application Form X for an export license.

The shipment must be consigned to the export association that issued the certificate, and exporters are required to state on the application the name of the person or firm in whose favor the import certificate was issued. Shipments may be made only on vessels flying the Swedish flag.

Activities of the War Service Committee of the Rubber Industry of the U. S. A.

THE War Service Committee of the Rubber Industry of the U. S. A. has been working incessantly in behalf of the whole industry and matters of greatest importance to the trade have engaged the attention of this committee during the past month, a complete record of which will be found in these columns.

The Committee has been enlarged and Division Committees appointed, and a plan of organization and procedure governing the latter committees has been adopted. The personnel of the various committees is given below:

PERSONNEL OF THE WAR SERVICE COMMITTEE

CENTRAL COMMITTEE.

B. G. Work, chairman, The B. F. Goodrich Co., 1780 Broadway, New York City.
Homer E. Sawyer, vice-chairman, United States Rubber Co., 1790 Broadway, New York City.
E. H. Broadwell, The Fisk Rubber Co., Chicopee, Falls, Massachusetts.
H. S. Firestone, Firestone Tire & Rubber Co., Akron, Ohio.
J. Newton Gunn, United States Tire Co., 1790 Broadway, New York City.
G. B. Hodgman, Hodgman Rubber Co., Tuckahoe, New York.
W. J. Kelly, Poel & Kelly, Inc., 347 Madison avenue, New York City.
P. W. Litchfield, The Goodyear Tire & Rubber Co., Akron, Ohio.
C. T. Wilson, Charles T. Wilson Co., Inc., 56 Wall street, New York City.
E. S. Williams, United States Rubber Co., 1790 Broadway, New York City.
TREASURER: H. S. Vorhis, 52 Vanderbilt avenue, New York City.
SECRETARY: M. L. Heminway, 52 Vanderbilt avenue, New York City, and 808 Colorado Building, Washington, District of Columbia.

AIRCRAFT DIVISION.

P. W. Litchfield, chairman, The Goodyear Tire & Rubber Co., Akron, Ohio.
W. H. Yule, The B. F. Goodrich Co., Akron, Ohio.
A. E. Jury, United States Rubber Co., Newark, New Jersey.

BOOT AND SHOE DIVISION.

George H. Mayo, chairman, United States Rubber Co., 1790 Broadway, New York City.
Francis S. Dane, vice-chairman, Hood Rubber Co., Watertown, Massachusetts.
Hugh Bullock, Converse Rubber Shoe Co., Malden, Massachusetts.
Robert S. Emerson, Narragansett Rubber Co., Bristol, Rhode Island.
A. S. Funk, La Crosse Rubber Mills Co., La Crosse, Wisconsin.
W. G. Hill, Apsley Rubber Co., Hudson, Massachusetts.
T. W. McDowell, Goodyear Rubber Co., Middletown, Connecticut.
L. T. McCollum, Mishawaka Woolen Manufacturing Co., Mishawaka, Indiana.
Francis R. McKenna, Bourn Rubber Co., Providence, Rhode Island.
Theodore Nicar, Firestone Tire & Rubber Co., Akron, Ohio.
George W. Prall, Lambertville Rubber Co., Lambertville, New Jersey.
J. A. Rishel, The B. F. Goodrich Co., Akron, Ohio.
L. C. Warner, Beacon Falls Rubber Shoe Co., Beacon Falls, Connecticut.
SECRETARY: E. S. Sylvester, United States Rubber Co., 1790 Broadway, New York City.

CLOTHING DIVISION.

N. Lincoln Greene, chairman, American Rubber Co., Boston, Massachusetts.
George G. Bryant, vice-chairman, Chicago Rubber Clothing Co., Racine, Wisconsin.
Charles Brown, Mystic Rubber Co., West Medford, Massachusetts.
J. T. Callahan, Archer Rubber Co., Milford, Massachusetts.
S. T. Hodgman, Hodgman Rubber Co., Tuckahoe, New York.
W. G. Hill, Apsley Rubber Co., Hudson, Massachusetts.
Dr. L. C. Himebaugh, British-American Manufacturing Co., Springdale, Connecticut.
F. W. Jones, The B. F. Goodrich Co., Akron, Ohio.
C. Kenyon, Jr., C. Kenyon Co., 754 Pacific street, Brooklyn, New York.
E. C. Klauber, Rosenwald & Weil, Chicago, Illinois.
Warren MacPherson, Cambridge Rubber Co., Cambridge, Massachusetts.
John V. McHose, Scioto Rubber Co., Columbus, Ohio.
Charles Place, New York Mackintosh Clothing Co., Mamaroneck, New York.
W. M. Tenney, Clifton Manufacturing Co., Boston, Massachusetts.
SECRETARY: B. L. Swift, American Rubber Co., Boston, Massachusetts.

CRUDE RUBBER AND KINDRED PRODUCTS DIVISION.

C. T. Wilson, chairman, Charles T. Wilson Co., Inc., 56 Wall street, New York City.
G. B. Hodgman, vice-chairman, Hodgman Rubber Co., Tuckahoe, New York.
E. H. Broadwell, The Fisk Rubber Co., Chicopee Falls, Massachusetts.
E. H. Huxley, United States Rubber Export Co., Limited, 1790 Broadway, New York.
W. J. Kelly, Poel & Kelly, Inc., 347 Madison avenue, New York City.
H. E. Sawyer, United States Rubber Co., 1790 Broadway, New York City.
B. G. Work, The B. F. Goodrich Co., 1780 Broadway, New York City.
SECRETARY: H. S. Vorhis, 52 Vanderbilt avenue, New York City.

FOREIGN TRADE DIVISION.

E. H. Huxley, chairman, United States Rubber Export Co., Limited, 1790 Broadway, New York City.
F. E. Titus, vice-chairman, The B. F. Goodrich Company, 1780 Broadway, New York City.
J. E. Baum, Empire Rubber & Tire Co., Trenton, New Jersey.
E. H. Broadwell, The Fisk Rubber Co., Chicopee Falls, Massachusetts.
F. E. Dayton, Ajax Rubber Co., Inc., 1796 Broadway, New York City.
R. H. DANIELS, The Goodyear Tire & Rubber Co., Akron, Ohio.
A. S. Hardy, Manhattan Rubber Manufacturing Co., 120 Broadway, New York City.
W. B. Laighton, Hood Rubber Co., Watertown, Massachusetts.
George H. Moss, Electric Cable Co., 10 East 43d street, New York City.
R. J. Owens, Boston Woven Hose & Rubber Co., Boston, Massachusetts.
A. G. Partridge, Firestone Tire & Rubber Co., Akron, Ohio.
Henry G. Tyer, Tyer Rubber Co., Andover, Massachusetts.

GAS DEFENSE DIVISION.

Dr. W. C. Geer, chairman, The B. F. Goodrich Co., Akron, Ohio.
William Stephens, vice-chairman, The Goodyear Tire & Rubber Co., Akron, Ohio.
George W. Dann, Pennsylvania Rubber Co., Jeannette, Pa.
R. T. Griffith, The Miller Rubber Co., Akron, Ohio.
Dr. L. C. Himebaugh, British-American Manufacturing Co., Springdale, Connecticut.
George A. Ludington, The Fisk Rubber Co., Chicopee Falls, Massachusetts.
T. W. Miller, Faultless Rubber Co., Ashland, Ohio.
Dr. Theodore Whittelsey, United States Rubber Co., 1790 Broadway, New York City.
SECRETARY: N. S. Noble, The B. F. Goodrich Co., Akron, Ohio.

HARD RUBBER DIVISION.

H. Weida, chairman, India Rubber Co., New Brunswick, New Jersey.
F. G. Achelis, vice-chairman, American Hard Rubber Co., 11 Mercer street, New York City.
Bruce Bedford, Luzerne Rubber Co., Trenton, New Jersey.
Harry Boyer, Joseph Stokes Rubber Co., Trenton, New Jersey.

J. W. Maguire, Brunswick-Balke-Collender Co., Muskegon, Michigan.
Samuel H. Dodd, Vulcanized Rubber Co., 251 Fourth avenue, New York City.
John Joseph, The B. F. Goodrich Co., Akron, Ohio.

INSULATED WIRE AND CABLE DIVISION.

Wallace S. Clark, chairman, General Electric Co., Schenectady, New York.
Edward Sawyer, vice-chairman, Atlantic Insulated Wire & Cable Co., 52 Vanderbilt avenue, New York City.
Joseph C. Belden, Belden Manufacturing Co., Chicago, Illinois.
T. Whitney Blake, Whitney Blake Manufacturing Co., New Haven, Connecticut.
George B. North, Hazard Manufacturing Co., 533 Canal street, New York City.

MECHANICAL GOODS DIVISION.

E. S. Williams, chairman, United States Rubber Co., 1790 Broadway, New York City.
George E. Hall, vice-chairman, Boston Woven Hose & Rubber Co., Boston, Massachusetts.
I. R. Bailey, The Goodyear Tire & Rubber Co., Akron, Ohio.
C. C. Case, United States Rubber Co., 1790 Broadway, New York City.
C. A. Daniel, Quaker City Rubber Co., Philadelphia, Pennsylvania.
C. D. Garrettson, Electric Hose & Rubber Co., Wilmington, Delaware.
J. H. Kelly, Hewitt Rubber Co., Buffalo, New York.
J. A. Lambert, Acme Rubber Manufacturing Co., Trenton, New Jersey.
Guy E. Norwood, Republic Rubber Corp., Youngstown, Ohio.
B. H. Pratt, The Federal Rubber Co., Cudahy, Wisconsin.
W. O. Rutherford, The B. F. Goodrich Co., Akron, Ohio.
Henry Spadone, Gutta Percha & Rubber Manufacturing Co., 126 Duane street, New York City.
Arthur F. Townsend, Manhattan Rubber Manufacturing Co., Passaic, New Jersey.
John J. Voorhees, Voorhees Rubber Manufacturing Co., Jersey City, New Jersey.
SECRETARY: A. Y. Tucker, United States Rubber Co., 1790 Broadway, New York City.

MEDICAL RUBBER GOODS AND SUNDRIES DIVISION.

A. W. Warren, chairman, Hodgman Rubber Co., Tuckahoe, New York.
W. O. Rutherford, vice-chairman, The B. F. Goodrich Co., Akron, Ohio.
W. S. Davison, The Miller Rubber Co., Akron, Ohio.
Charles J. Davol, Davol Rubber Co., Providence, Rhode Island.
S. H. Jones, United States Rubber Co., 1790 Broadway, New York City.
F. H. Jones, Tyer Rubber Co., Andover, Massachusetts.
T. W. Miller, Faultless Rubber Co., Ashland, Ohio.
E. J. Schutz, Rubber Products Co., Barberton, Ohio.
F. O. Williams, Seamless Rubber Co., New Haven, Connecticut.
SECRETARY: J. Russell Parker, Parker, Stearns & Co., 288 Sheffield avenue, Brooklyn, New York.

PNEUMATIC TIRE DIVISION.

G. M. Stadelman, chairman, The Goodyear Tire & Rubber Co., Akron, Ohio.
E. H. Broadwell, vice-chairman, The Fisk Rubber Co., Chicopee Falls, Massachusetts.
J. E. Baum, Empire Rubber & Tire Co., Trenton, New Jersey.
J. S. Broughton, United & Globe Rubber Manufacturing Cos., Trenton, New Jersey.
O. R. Cook, Kelly-Springfield Tire Co., 1614 Prospect avenue, Cleveland, Ohio.
W. W. Duncan, Hood Tire Co., Watertown, Massachusetts.
Seneca G. Lewis, Pennsylvania Rubber Co., Jeannette, Pennsylvania.
H. L. McClaren, Ajax Rubber Co., Inc., 1796 Broadway, New York City.
W. O'Neil, General Tire & Rubber Co., Akron, Ohio.
W. O. Rutherford, The B. F. Goodrich Co., Akron, Ohio.
J. W. Thomas, Firestone Tire & Rubber Co., Akron, Ohio.
O. L. Weaver, Star Rubber Co., Akron, Ohio.
SECRETARY: J. C. Weston, United States Tire Co., 1790 Broadway, New York City.

RAILWAY SUPPLIES DIVISION.

H. E. Raymond, chairman, The B. F. Goodrich Co., 1780 Broadway, New York City.
J. H. Kelly, vice-chairman, Hewitt Rubber Co., Buffalo, New York.
I. R. Bailey, The Goodyear Tire & Rubber Co., Akron, Ohio.
J. S. Broughton, United & Globe Rubber Manufacturing Cos., Trenton, New Jersey.
J. H. Cobb, New York Belting & Packing Co., 91 Chambers street, New York City.
C. A. Daniel, Quaker City Rubber Co., Philadelphia, Pennsylvania.
H. M. Green, Manhattan Rubber Manufacturing Co., Passaic, New Jersey.
George E. Hall, Boston Woven Hose & Rubber Co., Boston, Massachusetts.
J. A. Lambert, Acme Rubber Manufacturing Co., Trenton, New Jersey.
G. E. Norwood, Republic Rubber Corp., Youngstown, Ohio.
F. H. Smith, New Jersey Car Spring & Rubber Co., Inc., Jersey City, New Jersey.

RECLAIMED RUBBER DIVISION.

F. H. Appleton, chairman, F. H. Appleton & Son, Inc., Boston, Massachusetts.
C. W. Harrison, vice-chairman, Bloomingdale Rubber Co., 501 Fifth avenue, New York City.
E. A. Anderson, Rubber Regenerating Co., Naugatuck, Connecticut.
John S. Clapp, E. H. Clapp Rubber Co., Boston, Massachusetts.
R. A. Low, United States Rubber Reclaiming Co., Inc., 30 East 42nd street, New York City.
John S. Lowman, Philadelphia Rubber Works Co., Akron, Ohio.
Joseph F. McLean, Pequanoc Rubber Co., Butler, New Jersey.

SOLID TIRE DIVISION.

J. W. Thomas, chairman, Firestone Tire & Rubber Co., Akron, Ohio.
T. C. Marshall, vice-chairman, Kelly-Springfield Tire Co., 7th avenue and 57th street, New York City.
W. H. Allen, The B. F. Goodrich Co., Akron, Ohio.
H. G. Ault, General Tire & Rubber Co., Akron, Ohio.
E. H. Broadwell, The Fisk Rubber Co., Chicopee Falls, Massachusetts.
W. W. Duncan, Hood Tire Co., Watertown, Massachusetts.
Hugo Hoffstaedter, Polack Tyre & Rubber Co., 1876 Broadway, New York City.
P. W. Litchfield, The Goodyear Tire & Rubber Co., Akron, Ohio.
John Morgan, McGraw Tire & Rubber Co., East Palestine, Ohio.
Mark Roe, Republic Rubber Corp., Youngstown, Ohio.
Thomas F. Walsh, Swinehart Tire & Rubber Co., Akron, Ohio.
C. J. Welch, United States Rubber Co., 1790 Broadway, New York City.

PLAN OF ORGANIZATION AND PROCEDURE OF DIVISION COMMITTEES.

ORGANIZATION.

The War Service Division Committees shall be representative of each branch of manufacture of the rubber industry, and shall be designated by such name or title as the Central Committee may determine.

Special committees may be appointed by the Central Committee to undertake any particular work for the benefit of the industry as a whole or any part thereof.

Appointment to membership on a Division Committee shall be made by the Central Committee.

Each Division Committee shall have a chairman and a vice-chairman, who shall be appointed by the Central Committee.

PERSONNEL.

Each Division Committee, with the exception of special committees heretofore mentioned, should be fully representative of the branch of the industry which it serves, and should include in its membership as far as possible representation of large, medium and small concerns.

The number of members on each committee shall be limited to fifteen, but should be no greater than is necessary to make it fully representative.

Any member of a Division Committee who may not be able to attend a meeting shall send as an alternate some one from his organization fully qualified to represent and act for him.

Each member of a Division Committee may have the privilege of bringing to any meeting a representative of his firm (either technical or commercial), or in his absence may send two representatives, one of whom shall be qualified to act for him as noted

in preceding paragraph, but in no event shall the member or his alternate have the power to cast more than one vote.

Acceptance of membership on any Division Committee shall be considered as carrying with it an obligation to attend committee meetings whenever held (or to send a qualified alternate), to serve unselfishly and to make whatever sacrifices are necessary for the common good.

Division Committee members should be selected from those who are associated with the concerns with whom they are connected in an official capacity when possible.

MEETINGS.

Meetings of Division Committees may be called by the Central Committee; by the Division Chairman, or in his absence by the vice-chairman, or through a request to the chairman in writing by three members.

PROCEDURE.

At all Division Committee meetings, full and complete minutes should be kept of the proceedings for a permanent record. A copy of such minutes should be promptly forwarded to each member of the Division, to the secretary and to each member of the Central Committee.

For the purpose of coordinating the various Divisions of the War Service Committee and to prevent conflict, Division Committees should submit to the Central Committee for approval:

(*a*) All questionnaires before submitting them to the trade at large.

(*b*) Any general communications to the trade or the Divisions regarding recommendations for the industry, and

(*c*) All actions taken by Division Committees should be submitted to the Central Committee for approval before becoming operative.

A brief but complete record of all actions taken at each Division Committee meeting should be promptly sent out to all concerns in the industry which the Committee represents as a "Recommendation to the Central Committee."

In view of the number of Division Committees which will hold meetings at approximately the same time, it will be physically impossible for the Secretary of the War Service Committee to attend all these meetings. Therefore, each Division Committee shall appoint a permanent secretary, who shall keep all minutes and records.

As it has been determined that there shall be no *ex-officio* representative of the Central Committee on any of the Division Committees, the chairman of each Division Committee shall give proper notice to the War Service Committee, 52 Vanderbilt avenue, New York City, of the time and place of all Division Committee meetings, in order that each member of the Central Committee may be notified and may attend such meetings if he so desires, it being the desire of the Central Committee that its members may be in as close touch as possible with the work of the various Division Committees.

Each Division Committee shall prepare, with the assistance of the Secretary of the War Service Committee, a list of the concerns whom it represents, and a proper mailing list should be in the possession of each division chairman and secretary, as well as in the New York and Washington offices.

LABOR PRIORITY BULLETIN.

The Committee notified all rubber manufacturers on September 30, that the following bulletin just received from the Priorities Division, War Industries Board, Washington, District of Columbia, was forwarded by the Department of Labor on the 26th instant to all District Boards:

WAR INDUSTRIES BOARD, PRIORITIES DIVISION, WASHINGTON.

LABOR PRIORITY BULLETIN NO. 2.

To United States Employment Service and All Industrial Advisers:

You are notified that the rubber manufacturers of the country have reached an agreement with the Priorities Division of the proper control by the War Industries Board. The Priorities Division, deeming the remaining production to be essential, and the industry as a whole under said curtailed program to be entitled to general preferential treatment, has certified it under the designation "Rubber-plants engaged principally in manufacturing rubber products," upon Preference List No. 2, giving it a rating of Class IV.

We ask that the Industrial Advisers bring this bulletin to the attention of the District Boards for their information."

EDWIN B. PARKER,
Priorities Commissioner.

WASHINGTON, D. C., September 21, 1918.

Should any manufacturer have difficulty through the failure of the District Board to recognize the classification of the industry on the preference list, he should wire details to the secretary of the War Service Committee of the Rubber Industry, 808 Colorado Building, Washington, District of Columbia, who will immediately take the matter up with the proper governmental department.

REGULATIONS GOVERNING THE PRODUCTION OF RUBBER PRODUCTS, ISSUE NO. 1, OCTOBER 1, 1918.

Although these regulations have been revised by the War Service Committee they are published as a matter of record. The new regulations will be found on page 74 of this issue.

THE regulations governing the production of rubber products, dated October 1, were distributed to the rubber industry by the Committee on October 8, with the suggestion that each manufacturing concern deputize some one in its organization to pass on all orders received and make application to the War Industries Board through the War Service Committee for approval or rejection of all orders for articles which may be doubtful, or have not been definitely approved.

The regulations that follow are supplemental to War Industries Board Circular No. 24. (See THE INDIA RUBBER WORLD, October 1, 1918, page 12) and superseding War Service Committee letter of September 23, governing production for the October-December period, 1918. (See THE INDIA RUBBER WORLD, October 1, 1918, page 14.)

The War Industries Board has instructed the War Service Committee of the Rubber Industry to issue the following regulations for the purpose of defining the control program outlined in Circular No. 24 Priorities Division of the War Industries Board.

The production of all rubber products will be controlled under four general classifications as to articles and their use, as follows:

CLASS I.

Articles to be supplied on *direct orders* received from the following sources:

Governmental departments.
Government-controlled railways.
Government-controlled express companies.
Government-controlled telephone companies.
Government-controlled telegraph companies.
The American Red Cross.
Allied Governments (Official).

CLASS II.

Articles to be supplied for use in industries approved by the War Industries Board. These industries comprise, first, those at present listed, or to be listed on preference lists issued or to be issued by the Priorities Division of the War Industries Board, and, second, those which, while not so listed, are adjudged or

to be adjudged by the Priorities Division of the War Industries Board as more or less essential and permittted to operate in whole or in part.

CLASS III.

Articles for general use.

CLASS IV.

Articles considered by the War Industries Board to be *non-essential.*

GENERAL INSTRUCTIONS.

As it is obviously impossible to prepare at one time lists of articles or industries which are complete, the lists herein published are subject to revision from time to time by additions or reductions.

The volume or quantity of production when not specifically limited to a definite amount must in no case exceed the normal current demand, and it is *incumbent upon manufacturers to satisfy themselves* that stocks do not accumulate, either with themselves, their dealers, jobbers or distributors, or ultimate consumers.

These regulations supersede War Service Committee letter of September 23, 1918, and are supplemental to Circular No. 24 issued by the Priorities Division of the War Industries Board, and the spirit of that circular is to be appreciated and followed in applying the regulations and restrictions herein contained.

After receipt of this notice no article shall be produced, except as herein provided, until a ruling has been obtained. Manufacturers producing articles other than those listed should immediately request rulings upon the classifications under which they may or may not be produced.

The above paragraph is modified to the extent that goods in process of manufacture may be completed to prevent actual loss. Goods in process, however, do not include compounds which may be on hand especially prepared for specific purposes. These compounds should be worked over for the production of essential articles. The control of production applies equally to orders or commitments which may be in hand. Orders on hand for non-essential articles may either be cancelled or held in abeyance subject to further instructions from the War Industries Board.

Forms for use in making applications for classifications of articles or uses will be supplied by the War Service Committee upon request, stating number required. (Address, 52 Vanderbilt avenue, New York City.) These applications should be made out in triplicate and forwarded to the War Service Committee of The Rubber Industry, 808 Colorado Building, Washington, D. C. A ruling will then be obtained from the War Industries Board and transmitted to the applicant.

Export—The pledge provided in paragraph 10, Circular 24, is not required to cover export shipments, but manufacturers are required to satisfy themselves that shipments are to be exported by personal inspection of export license.

CONTROL OF PRODUCTION FOR VARIOUS CLASSES.

CLASS I.

Production of all rubber products for the Government is limited only by orders in hand except that all rulings of the Conservation Division of the War Industries Board apply to this class unless a special exception is made by the Rubber Section of the War Industries Board.

Crude rubber consumed will be replaced in full under War Trade Board plan "A" Allocation. (See THE INDIA RUBBER WORLD, October 1, 1918, page 13.)

CLASS II.

Sufficient production of articles in this class is authorized to supply essential requirements of those engaged in industries on the preference list of the War Industries Board designated as Division "A," and individual manufacturers who have been given preferential treatment designated as Division "B."

These lists will be revised from time to time according to decisions of the War Industries Board. Applications may be made as hereinbefore provided for rulings covering either industries or individual concerns.

ARTICLES.

Aprons, tension
Bags
  Hat
  Gas main
Belting
  Conveyor
  Elevator
  Emery
  Transmission
  Stitched canvas
Belts
  Hog beater
  Vanner
Blankets, printers'
Bolsters
Brush settings
Cable, electrical insulated
Cement
Cloth
  Waterproof
  Card
Cutting rubbers
Diaphragms
  Screen
  Sheet
Gaskets
Gasket tubing
Gloves
  Acid
  Electrical
Hard rubber goods
  Battery jars and accessories
  Battery separators
  Blades, doctors'
  Containers and carriers for chemical industries
Hard rubber goods
  Disks, water meter
  Electrical
  Fountain-pen stock
  Pipe and fittings
  Rod
  Sheet
  Submarines
    Insulating accessories
    Ventilating apparatus
    Jars and accessories
  Textile
  Tubing
Hose
  Acid, air-brake, air-drill, car-heating, chemical, coke, deck, engine and tender, gasoline, oil, oxygen and acetylene, pneumatic, radiator, sand-blast, spray, steam, submarine, suction, vacuum, water
Mittens
Molded goods
Packing
Pulley, sheave filling
Rolls and roll covering
Sleeves, dredging
Straps, deckle
Thread
Tiling
Tubes, grain drill
Valve balls
Valve disks
Valves
Washers
Wrapped goods

CLASS II—DIVISION A.

PREFERENTIAL INDUSTRIES.

Aircraft
Ammunition
Army and Navy, Arsenals and Navy Yards, Class I
Army and Navy, Cantonments and Camps, Class I
Arms (small)
Bags
Blast furnaces
Boots and shoes
Brass and copper
Chain
Chemicals
Coke
Cotton compressors
Cranes
Drugs
Electrical equipment
Explosives
Farm implements
Ferro alloys
Fertilizers
Fire brick
Foods
Food containers
Foundries
Guns
Hospitals (See public institutions and buildings)
Ice
Insecticides and fungicides
Laundries
Machine tools
Medicines
Mines, coal, Class I
Mines, producing metals and ferro-alloy, Class II
Newspapers and periodicals
Oil and gas
Public institutions and buildings
Public utilities
Pulp and paper
Railways
Ships
Soap
Steel-making furnaces
Steel-plate mills, Class I
Steel-rail mills
Surgical supplies
Tanners
Textiles
Tin plates
Tobacco
Toluol
Tools
Twine
War and Navy departments
Wire rope and rope wire
Woolen textiles (see textiles)

CLASS II—DIVISION B.

SEMI-PREFERENTIAL INDUSTRIES.

Copy of list of manufacturers under this classification may be obtained from the War Service Committee, Colorado Building, Washington, District of Columbia.

CLASS III.

Articles falling under this class may be produced to the extent necessary to meet current demands, unless otherwise specified.

ARTICLES.

Athletic goods (complete in themselves)
  40% per month of the average monthly 1917 production
Bags
  Traveling
Bands
  50% per month of the average monthly 1917 production
Clothing
  Waterproof
Combs, hard-rubber
Erasers
  50% per month of the average monthly 1917 production
Footwear
  Boots and shoes
  Soles, heels and soling
Garden hose
  Total production for October, November, December, 1918, shall not exceed 50% of the total production for October, November, December, 1917
Horseshoe pads
Horseshoes
Hose for fire protection
Mats and matting
  50% per month of the average monthly 1917 production

Medical and surgical goods
- Bags
  - Face
  - Ice
  - Politzer air
- Bandages
- Bottles, water
- Bougies
- Bulbs
  - Dental
  - Vaccine
- Caps
  - Ice
  - Test tube
- Catheters
- Cushions
  - Invalid
- Operating
- Dam, dental
- Disks, dental bellows
- Douche, nasal bulb
- Gloves, surgeons'
- Gum, bandage
- Gutta percha tissue
- Irrigator, Turcks' stomach
- Nipples
- Pads
  - Colostomy
  - Truss, hard and soft
- Pessaries
- Plugs, antitoxin
- Pumps, breast
- Respirators
- Sheeting
  - Nursery
  - Bed
- Syringe
  - Attachments
  - Hard rubber
  - Bulb
  - Combination
- Syringe
  - Ear
  - Fountain
  - Nasal
  - Surgeons'
  - Ulcer
- Tips, crutch
- Tourniquets
- Tubes
  - Colon
  - Drainage
  - Nasal feeding
  - Rectal
  - Stethoscope
  - Stomach
  - Valentine
- Tubing, syringe
- Urinals
- Vaporizers

Rings
- Fruit jar

Tape
- Friction
- Splicing

Tires
- Baby carriage
- Bicycle
- Motorcycle
- Pneumatic automobile under 6-inch (In accordance with paragraph 6, Cir. 24, P. D., W. I. B.)
- Pneumatic tires, 6-inch and over
- Solid motor truck
- Solid vehicle (not motor driven)
- Sundries (including repair materials)

Tubing (all kinds)
- 75% per month of the average monthly 1917 production

Wire
- Electrical insulated

CLASS IV.

The production of articles listed under this class is absolutely prohibited.

ARTICLES.

- Bags
  - Confectioners'
  - Sponge
- Bands, chin
- Buckets, fire
- Bulbs, perfume
- Bumpers, screen
- Bust forms
- Chips, poker
- Collars, swimming
- Complexion articles and cloth
- Cups, drinking
- Feet for furniture
- Gloves, household
- Garments, bathing
- Goggles
- Grips, bicycle
- Hard-rubber goods
  - Balls
    - Bowling
    - Duck pin
    - Roque
  - Buttons
  - Cork-screws
  - Flasks, pocket
  - Funnels
  - Holders
    - Caustic
    - Cigar and cigarette
    - Pen
  - Hooks, crochet
  - Ink stands
  - Match boxes
  - Openers, letter
  - Pins, hair
- Hard-rubber goods
  - Rings
    - Embroidery
    - Teething
  - Rulers
  - Scoops, druggists'
  - Shakers
  - Shuttles, tatting
  - Speculas
  - Stands, beer-glass
  - Stethoscopes
  - Suppositories
  - Thimbles
  - Trumpets, ear
  - Tumblers
  - Wheels, automobile steering
- Mats, bath
- Matting ends
- Mitts, bath
- Pacifiers
- Pads, landing
- Pails, fire and collapsible
- Pillows
  - Bath
  - Turkish bath
- Rings, umbrella
- Softeners, beard
- Specialties, advertising
- Sprinklers, flower
- Tips
  - Billiard cue
  - Chair
  - Screw
  - Tack
- Ventilators, pillow

REGULATIONS GOVERNING THE PRODUCTION OF RUBBER PRODUCTS, ISSUE NO. 2, NOVEMBER 1, 1918.

THESE regulations are supplemental to War Industries Board Circular No. 24 and supersede War Service Committee letter of September 23, 1918, and Regulations Governing the Production of Rubber Products, Issue No. 1, October 1, 1918.

Issue No. 1 of Regulations Governing Production of Rubber Products, dated October 1, 1918, provided for classification of both uses and articles. Since that date the War Industries Board has ruled that the main control shall be through articles, inasmuch as uses will be largely regulated by the Board. There will be a number of exceptions to this general rule where certain articles are considered essential for some purposes and non-essential for other purposes. In determining the essential character of articles the War Industries Board endeavors wherever possible to consider the needs of the producers of the articles as well as the necessity for the articles themselves. The new ruling creates a much simpler form of control, but at the same time places a greater responsibility upon the industry.

Under the new ruling former Class II is eliminated, leaving only Classes I, III and IV, which will now be known as Classes I, II and III.

Class I remains as direct government orders.

Class II becomes a list of articles which may be produced in accordance with the following regulations:

First.—Articles which may be produced in sufficient quantities to meet current needs. (These articles are listed without comment.)

Second.—Articles the production of which is curtailed and which may be produced only to the extent indicated.

Third.—Articles which may be produced only for specific purposes or uses. (See page 75.)

Class III now becomes a list of articles the production of which is prohibited. Under this class are also listed articles which may not be produced for specific purposes even though the production of the same articles is allowed under Class II for other specific purposes. (See page 76.)

The War Industries Board has instructed the War Service Committee of the Rubber Industry to issue the following regulations for the purpose of defining the control program outlined in Circular No. 24 Priorities Division of the War Industries Board. (See page 12, THE INDIA RUBBER WORLD, October 1, 1918.)

The production of all rubber products will be controlled under three general classifications as to articles and their uses described and listed in the following pages:

1. These regulations supersede all previous regulations, including War Service Committee letter of September 23, 1918, and Issue No. 1 Regulations dated October 1, 1918, and are supplemental to Circular No. 24 issued by the Priorities Division of the War Industries Board, and the spirit of that circular is to be appreciated and followed in applying the regulations and restrictions herein contained.

2. Manufacturers are cautioned to exercise great care in the production of articles permitted for specific uses, and to obtain rulings whenever the proposed use is not specifically authorized or is not perfectly clear.

3. After November 11, 1918, no article shall be produced except as herein provided until a ruling has been obtained. Manufacturers producing articles other than those listed should immediately request rulings upon the classifications under which they may or may not be produced.

4. The above paragraph is modified to the extent that goods in process of manufacture may be completed to prevent actual loss. Goods in process, however, do not include compounds which may be on hand especially prepared for specific purposes. These compounds should be worked over for the production of essential articles. The control of production applies equally to orders or commitments which may be in hand. Orders on hand for non-essential articles may either be cancelled or held in abeyance subject to further instructions from the War Industries Board.

5. The volume or quantity of production when not specifically limited to a definite amount must in no case exceed the normal current demand, and it is incumbent upon manufacturers to satisfy themselves that stocks will not accumulate, either with themselves, their dealers, jobbers or distributors, or ultimate consumers.

6. As it is obviously impossible to prepare at one time complete lists of articles, the lists herein are subject to revision from time to time by additions or reductions.

7. Forms for use in making applications for classifications of articles or uses will be supplied by the War Service Committee upon request, stating number required. (Address, 52 Vanderbilt avenue, New York City.) These applications should be made out in triplicate and forwarded to the War Service Committee of the Rubber Industry. A ruling will then be obtained from the War Industries Board and transmitted to the applicant.

8. Export.—The pledge provided in Paragraph 10, Circular No. 24, is not required to cover export shipments.

All articles may be produced for export, including articles listed in Class III, but in cases where the production is curtailed the total amount produced for both domestic and export business must not exceed the amount indicated. Manufacturers are required to satisfy themselves that shipments are to be exported by personal inspection of export licenses.

9. The articles listed in Classes II and III are arranged in alphabetical order with the exception of general groupings such as hard-rubber goods, molded goods, etc. Caution should therefore be exercised to look for articles under the groupings if not found in the general list.

10. Articles already made and in stock which are non-essential may be sold.

Articles already made and in stock used for both essential and non-essential purposes may be sold for essential purposes only.

CONTROL OF PRODUCTION FOR VARIOUS CLASSES.

CLASS I.

Articles to be supplied on *direct orders* received from the following sources:

Governmental departments.
Government-controlled railways.
Government-controlled express companies.
Government-controlled telephone companies.
Government-controlled telegraph companies.
The American Red Cross.
Allied Governments (Official).

Production of all rubber products for the above is limited only by orders in hand except that all rulings of the Conservation Division of the War Industries Board and Provisions of Class III apply to this class unless a special exception is made by the Rubber Section of the War Industries Board.

Crude Rubber consumed will be replaced in full under War Trade Board plan "A" Allocation. (See page 13, THE INDIA RUBBER WORLD, October 1, 1918.)

CLASS II.

Articles which may be produced in accordance with the following regulations and in accordance with regulations promulgated by the Conservation Division of the War Industries Board.

FIRST.—Articles which may be produced in sufficient quantities to meet current needs. (These articles are listed without comment.)

SECOND.—Articles the production of which is curtailed and which may be produced only to the extent indicated.

THIRD.—Articles which may be produced only for specific purposes or uses.

Where the production of any article is expressly curtailed on a percentage basis, the requirements of Class I may be supplied in addition to the restricted amount arbitrarily fixed.

Attention is called to the fact that there are a number of articles listed in Class II without restriction, which would have been restricted were it not for the fact that the Priorities Division has already regulated the industries using these articles, so the demand will automatically be curtailed.

ARTICLES.

Acid tank linings
Aprons
  Laboratory
  Paper mill
Aprons
  Surgical
  Tension
Used as clothing
Bags
  Hat
  Gas engine
  Gas main
  Traveling
Balloons, target
Balloons, toy
  Production for November and December, 1918, shall not exceed 50% per month of the average monthly production for 1917.
Bands, stationers'
  Production for November and December, 1918, shall not exceed 50% per month of the average monthly production for 1917.
  Band saw
  Fleshing-machine
Base-ball centers
Bathing caps (see Caps)
Bath tubs
Belting
  Hair
  Conveyor
  Elevator
  Emery
  Transmission
  Stitched canvas
  Woven cotton
Belts
  Cigarette-machine
  Fan
  Hog-beater
  Take-off (magnetic separator)
Billiard cushions
Bladders
Blankets
  Lithographers'
  Paper mill
  Printers'
Bolsters
Brush settings
Brushes
  Bottlecleaning
Buckets, auto
Bulbs
  Faucet
  Furnace
  Hydrometer
  Tank
Bulbs, auto-horn
  Production for November and December, 1918, shall not exceed 50% per month of the average monthly production for 1917.
Bumpers, auto and truck
  Production for November and December, 1918, shall not exceed 50% per month of the average monthly production for 1917.
Bumpers, for following purposes:
  Cement machinery
  Cash registers
  Cranes and steam shovels
  Elevators
  Office appliances
  Plumbing and heating
  Scales
  Sewing machines
  Sweepers
Cable, electrical insulated
Caps, bathing
  Production for November and December, 1918, shall not exceed 50% per month of the average monthly production for 1917.
Camera bulbs and sets
  Production for November and December, 1918, shall not exceed 66⅔% per month of the average monthly production for 1917.
Cement, for following purposes:
  Aircraft manufacture
  Can manufacture
  Footwear
  Hat manufacture
  Hose attachments
  Industrial repair work
  Laying tiling and matting
  Paint manufacture
  Stamp manufacture
Centers
  Baseball
  Golf-ball
Channel rubber sash and glazing
Cloth, card
Cloth, coated, for following purposes:
  Automobile
  Band dater
  Bath tubs
  Engravers
  Electrical work
  Footwear
  Mattresses (see under Medical)
  Photographic
  Pillows (see under Medical)
  Piano and piano player manufacture
  Tobacco production
  Waterproof (clothing)
Clothing, waterproof
Collets, corset and garter
Connections, gasoline
Cups, billiard-ball
Cups, oil-well pump
Cushions
  Billiard
  Bradley hammer
  Sander
Cutting rubbers, for printing presses
Diaphragms
  Gasket
  Heater regulator
  Ink stand
  Pump
  Screen
  Vacuum brake
Diaphragm sheet
Engraving gum
Expansion joints
Erasers
  Production for November and December, 1918, shall not exceed 60% per month of the average monthly production for 1917.
Escalator rails
Footwear
  Arch supporters
  Boots and shoes
  Soles, heels and soling
  Footwear repair materials
Fountain-pen accessories
Gaskets
Gasket tubing
Gloves
  Acid
  Electrical
  For industrial purposes
Golf-ball centers
Goggles
Grips, motorcycle
Gutta-percha tissue
Hard-rubber goods
  Battery jars
  Battery jar accessories
  Blades, doctor
  Brush ferrules
  Combs
    Production for November and December, 1918, shall not exceed 66⅔% per month of the average monthly production for 1917.
  Containers and carriers for chemical industries
  Dental-apparatus parts
  Disks
    Dental finishing
    Optical
    Separating
    Slotting and cutting
    Water-meter
  Cutlery parts
  Electrical supplies
  Embalming supplies
  Fountin-pen stock
  Funnels
  Holders, pen
    Production for November and December, 1918, shall not exceed 50% per month of the average monthly production for 1917.
  Ink-well tops
  Instruments for the deaf
  Medical and surgical supplies
  Munition parts
  Musical instrument parts
  Optical supplies
  Pessaries
  Photographic parts
  Pipe stems
  Rod
  Rubber-covered rolls
  Sheet
  Submarines
    Insulating accessories
    Jars and accessories
    Ventilating apparatus
  Supplies for laboratories and schools
  Syringes and attachments
  Thermometer cases
  Truss-pad parts
  Tubing, for electrical work
  Water-meter parts
Horseshoe pads
  Production for November and December, 1918, shall not exceed 66⅔% per month of the average monthly production for 1917.
Horse shoes
Hose
  Acid
  Air-brake
  Air-drill
  Air-signal
  Car-heating
  Chemical
  Cider and vinegar
  Coke
  Deck

Hose
- Diving
- Engine and tender
- Fire
- Gas
- Gasoline
- Oil
- Oxygen and acetylene
- Paint and varnish
- Pneumatic
- Radiator
- Sand-blast
- Spray
- Steam
- Submarine
- Suction
- Vacuum
- Water

Hose, garden
- Production for October, November and December, 1918, shall not exceed 50% per month of the average monthly production for October, November and December, 1917.

Linings for acid tanks
Mallets
Matting, mats of all kinds and matting ends
- Production for November and December, 1918, shall not exceed 50% per month of the average monthly production for 1917.

Medical and surgical goods
- Antitoxin outfits
- Atomizer sets
- Bags
  - Face
  - Ice
  - Politzer air
- Bandages
- Bottles, water
- Bougies
- Bowls, dental
- Brushes, massage
- Bulbs
  - Atomizer
  - Capillary-tube
  - Dental
  - Dropper
  - Nasal
  - Syringe
  - Vaccine
- Caps
  - Ice
  - Test tube
- Catheters
- Crutch tips
- Cup ends
- Cups, dental polishing
- Cups, massage
- Cushions
  - Invalid
  - Operating
- Dam, dental
- Disks, dental-bellows
- Douche, nasal-bulb
- Droppers
- Gloves, surgical
- Gum
  - Bandage
  - Dental
- Irrigator, Turck's stomach
- Mattresses, air
  - Production for November and December, 1918, shall not exceed 60% per month of the average monthly production for 1917.
- Molded and wrapped goods for artificial limbs
- Needle pieces, connecting
- Nipples
- Pads
  - Colostomy
  - Truss, hard and soft
- Pessaries
- Pillows, air
  - Production for November and December, 1918, shall not exceed 60% per month of the average monthly production for 1917.
- Plugs, antitoxin
- Points, polishing
- Pumps, breast
- Respirators
- Rings, antitoxin
- Sheets, bed
- Sheeting
  - Bed
  - Nursery
- Sphygmomanometer outfits
- Stopples, antitoxin
- Syringes
  - Attachments
  - Hard-rubber
  - Bulb
  - Combination
  - Ear
  - Fountain
  - Infant
  - Nasal
  - Surgical
  - Ulcer
- Tips, crutch

Medical and surgical goods
- Tourniquets
- Tubes
  - Colon
  - Drainage
  - Nasal feeding
  - Rectal
  - Stethoscope
  - Stomach
  - Valentine
- Tubing
  - Medical
  - Surgical
  - Syringe
- Urinals
- Vaporizers
- X-ray sheeting

Menders for fire hose
Mittens for industrial purposes
Molded and wrapped goods for the following purposes:
- Aircraft
- Ammunition and explosives
- Artificial limbs
- Battery-jar manufacture
- Calculating machines
- Can manufacture
- Canners
- Carpet sweepers
- Cash registers
- Chemical manufacture
- Coffins
- Corsets
- Dairy and creamery machinery
- Die and stamping machinery
- Electrical equipment
- Farm implements
- Food products
- Hose attachments
- Laboratories
- Labeling machines
- Laundry machinery
- Life-saving appliances
- Mining and mining machinery
- Motorcycles
- Office appliances
- Oil and gas industries
- Oxygen and hydrogen apparatus
- Packing houses
- Paper and pulp industries
- Parts for hand-operated pumps
- Parts for tire valves
- Parts for water-bottle nozzles
- Pharmaceutical manufacture
- Plumbing and heating
- Pneumatic tools
- Potteries
- Printing presses
- Railway-car builders
- Railway supplies
- Refrigerating machinery
- Sewing machines
- Shoe machinery
- Shoe manufacture
- Sugar production and refining
- Submarines
- Tanneries
- Textile machinery
- Textile manufacture
- Tractors
- Typewriters
- Vacuum cleaners

Packers, oil well
Packings
Pedal rubbers
Phonograph parts
Play pipes for fire hose
Plugs, automatic-sprinkler
Plumbers' specialties
Pulley, sheave filling
Pulley, lagging
Respirators
Rings, for following purposes:
- Bead (for cast-iron pipe manufacture)
- Calculating machines
- Cotton compress
- Couplings
- Evaporator
- Friction
- Fruit-jar
- Hydraulic and vulcanizing presses
- Refrigerating machinery
- Separating machines
- Sewing machines
- Typewriter
- Valve, gutta-percha

Rolls and roll covering
Rubber, washed and dried, for following purposes:
- Aircraft
- Balloons, toy (see Balloons, toy)
- Cements (see Cement)
- Cements for food containers
- Gloves, electrical
- Gloves for industrial purposes
- Gloves, surgical
- Surgical supplies

Sheet rubber (other than packings)
- Production for November and December, 1918, shall not exceed 75% per month of the average monthly production for 1917.

Sponges, rubber
- Production for November and December, 1918, shall not exceed 50% of the average monthly production for 1917.

Sporting goods
- (Complete in themselves.) Production for November and December, 1918, shall not exceed the percentages specified per month of the average monthly production for 1917.
- Balls
  - Golf 40%
  - Hand 50%
  - Squash racquet 50%
  - Tennis 40%
- Pads, gun-recoil 50%
- Plates, baseball 60%
- Protectors, baseball 60%
- Guards, nose 60%
- Pucks, hockey 60%

Strip rubber
- Production for November and December, 1918, shall not exceed 75% per month of the average monthly production for 1917.

Shields, dress
Sleeves, dredging
Sponge, rubber
Stamp, gum
Stopples
Straps, deckle
Tape
- Friction
- Splicing

Thread and Tape for following purposes:
- Flexible metal hose and tubing
- Golf-ball centers
- Shock absorbers (for aircraft)
- Webbing

Tiling, interlocking and inlaid
- Production for November and December, 1918, shall not exceed 66⅔% per month of the average monthly production for 1917.

Tips, pencil
- Production for November and December, 1918, shall not exceed 60% per month of the average monthly production for 1917.

Tips, tack and screw, for following purposes:
- Office appliances
- Plumbing

Tires
- Baby carriage
- Bicycle
- Motorcycle
- Pneumatic automobile, under 6 inches (in accordance with paragraph 6, page No. 22, Circular No. 24, Priorities Div.)
- Pneumatic tires, 6 inches and over
- Solid motor, industrial
- Solid motor truck
- Solid vehicle (not motor driven)
- Sundries (incl. repair materials).
- Sweeper

Tissue, gutta-percha
Toys
- Production for November and December, 1918, shall not exceed 50% per month of the average monthly production for 1917.

Tubes, grain drill
Tubing, all rubber, cloth insertion, cloth-covered and braided cover.
- Production for November and December, 1918, shall not exceed 75% per month of the average monthly production for 1917.

Tubs, bath
Unvulcanized gum (compounded) for following uses:
- Artificial limbs
- Bathing caps (see Bathing caps)
- Brush manufacture
- Cement for specified purposes (see Cement)
- Dress shields
- Hat manufacture
- Patches
- Printing rolls
- Stamps

Vacuum cleaner rubbers
Valve balls
Valve disks
Valves
- Hydrant
- Pump
- Toy balloon

Wash basins
Welting
Wire, electrical insulated
Wrapped goods (see Molded goods)

CLASS III.

Articles considered by the War Industries Board to be in themselves *non-essential,* or non-essential for certain purposes. Under this class are also listed articles which may not be produced for specific purposes even though the production of the same articles is allowed under Class II for other specific purposes.

The production of articles under this class is either absolutely prohibited or prohibited except for permitted uses.

ARTICLES

Anti-rattlers
Aprons
- Household
- Nursery
- Tourist

Bags
- Camping
- Confectioners'
- Sponge

Bait, artificial
Bands, chin
Bibs
Blowers, powder
Brushes, tooth
Buckets
- Fire
- Camping
- Collapsible

Bulbs, perfume
Bumpers, screw (except for uses specified in Class II)
Bust forms
Chips, poker
Collars, swimming
Complexion articles
Complexion cloth
Cups, drinking
Feet (except for uses specified in Class II)
Flowers, artificial
Garments, bathing
Gloves (for domestic purposes)
Grips, bicycle
Hard-rubber goods
- Bait, artificial
- Balls
  - Bowling
  - Duck pin
  - Roque
- Buttons
- Corkscrews
- Flask, pocket
- Holders
  - Caustic
  - Cigar and cigarette
- Hooks, crochet
- Ink stands (not inkwell tops)
- Matchboxes
- Openers, letter
- Pins, hair
- Rings, embroidery
- Rulers
- Scoops, druggists'
- Shakers
- Shuttles, tatting
- Speculas
- Stands, beer glass
- Stethoscopes
- Suppositories
- Thimbles
- Tumblers
- Wheels, automobile steering

Kits
- Comfort
- Khaki
- Travelers'

Mitts, bath
Pacifiers
Pads
- Landing
- Teething

Pails, fire and collapsible
Pillows
- Bath
- Turkish bath

Pistol holsters
Pouches, tobacco
Protectors, bicycle-frame
Rings, umbrella
Softeners, beard
Specialties, advertising
Sprinklers, flower

Swatters, fly
Thread and tape, for following purposes:
  Novelties
  Toys
Tips
  Billiard cue
  Chair
Tips
  Screw
  Tack (except for uses specified in Class II)
Top prop
Ventilator, pillow
Washers, for following purposes:
  Whips
Weather strips

MEETINGS AND COMMUNICATIONS OF THE RUBBER ASSOCIATION OF AMERICA, INC.

THE following letter, dated October 5, was sent to all rubber manufacturers, importers and dealers:

The Executive Committee of The Rubber Association of America, Inc., at a meeting held on Friday, October 4, 1918, passed the following resolutions upon the recommendation of the War Service Committee of the Rubber Industry of the U. S. A.:

WHEREAS, the expenses of the War Service Committee of the Rubber Industry have been greatly increased because of the requirements of the Government in connection with the regulations of the War Industries Board and the War Trade Board, and,

WHEREAS, the revenue of The Rubber Association of America, Inc., has materially decreased because of curtailed importations of crude rubber and new methods of packing which have increased the weight per package;

THEREFORE, BE IT RESOLVED that it is the sense of the Executive Committee that the charge for the Rubber Association services in connection with recording guarantees, entering, storing, etc., should be based upon the weight of crude rubber instead of the number of packages, and that the rate be fixed at 10 cents per 100 pounds, and that the same be effective on and after October 10, 1918, and be it also

RESOLVED that the Executive Committee shall continue to administer the funds as economically as possible, always having in mind efficiency as the main consideration for the success of the rubber industry.

In a letter dated October 11, manufacturers, importers and dealers were informed as follows:

Supplementing our letter of October 5 last in regard to the charges for the Rubber Association services in connection with the importation of crude rubber and kindred products, please be advised that all charges will be based on net weight. The charges also will be made on crude rubber and kindred products invoiced on and after October 10, 1918, regardless of when the merchandise was purchased or shipped.

The charge for balata and gutta percha will be the same as for crude rubber, viz.: 10 cents per 100 pounds.

The charge in connection with the importation of gutta siak and pontianak will be five cents per 100 pounds.

SALES OF FREE RUBBER AND ALLOCATION CERTIFICATES.

Manufacturers, importers and dealers were notified by the Committee on Rubber and Kindred Products, on October 9, that the following communication had been received from the War Trade Board:

WAR TRADE BOARD.
WASHINGTON, D. C.

October 8, 1918.

The Rubber Association of America, Inc.,
52 Vanderbilt Avenue,
New York City.

Gentlemen:

Obviously it is important that necessary steps be taken to insure a proper distribution of free rubber now in this country in dealers' and manufacturers' hands or in transit, in order to assure a necessary supply for essential products and to prevent an accumulation of abnormal stocks.

To this end you are requested to immediately inform all importers, dealers and manufacturers, that hereafter all proposed sales of free rubber and all proposed sales of allocation certificates are to be submitted to the Bureau of Imports of the War Trade Board for approval before being consummated.

A form upon which proposed sales may be reported to the Bureau of Imports for approval is attached hereto.

FRED B. PETERSON,
Director.

It is understood by the Committee that the object of this new regulation is to assure, as far as possible, equitable distribution and control of the existing stocks of "free" rubber and such rubber represented by allocation certificates that manufacturers might desire to dispose of to the end that large individual accumulations may be prevented.

Therefore, after this date, all sales, as noted, must have the approval of the Bureau of Imports before being consummated.

We are advised by the Bureau of Imports that they are in a position to pass upon these applications promptly, but that approval will only be considered upon receipt of form executed in duplicate, containing the necessary particulars. They therefore request that no application be made by telephone, but solely upon the form prescribed. Supplies of these forms can be secured upon application to The Rubber Association of America, Inc.

MEETING OF THE BOARD OF DIRECTORS.

The Board of Directors and the Executive Committee held a meeting at the Union League Club, New York City, on October 24. Those present were Bertram G. Work, chairman, Harry F. Dunn, J. Newton Gunn, Homer E. Sawyer, Charles A. Daniel, John S. Lowman, Charles T. Wilson, William J. Kelly, Charles J. Davol, John A. Lambert, former presidents George B. Hodgman, Harvey S. Firestone and secretary Harry S. Vorhis.

The meeting was devoted to deliberation on matters of moment to the rubber industry and important decisions were made, one of which was to form a Crude Rubber Division to be composed of firm members. William J. Kelly, chairman *pro tem* of the Outing Committee, in charge of the Second Annual Golf Tournament, reported a balance of $627 that will be donated to the Smoke Fund.

EXECUTIVE COMMITTEE MEETING.

The Executive Committee elected the following firm members:

FIRM MEMBERS AND REPRESENTATIVES.

The Ravenna Rubber Co., S. K. Elliot, Ravenna, Ohio.

Midcontinental Tire Manufacturing Co., S. B. Wallingford, Wichita, Kansas.

International India Rubber Corp., George W. Odell, South Bend, Indiana.

The Long-Wear Rubber Co., F. W. O'Brien, Elyria, Ohio.

The Lion Tire & Rubber Corp., Thomas Follen, La Fayette, Indiana.

Weldon Roberts Rubber Co., Weldon Roberts, Newark, New Jersey.

The Worthington Ball Co., George C. Worthington, Elyria, Ohio.

Paul Bertuch, Paul Bertuch, 25 Beaver street, New York City.

MacDonald & Co., F. L. W. MacDonald, 454 Montgomery street, San Francisco, California.

Albert V. W. Tallman, Albert V. W. Tallman, 54 Stone street, New York City.

Joosten & Janssen, E. Janssen, 25 William street, New York City.

Sioux City Tire & Manufacturing Co., Charles F. Sawyer, Sioux City, Iowa.

Sampson Tire & Rubber Corp., William MacKay, 318 Van Nuys Building, Los Angeles, California.

Hagemeyer & Brunn, E. M. Brunn, 82 Beaver street, New York City.

The Armstrong Rubber Co., Inc., George F. Armstrong, Garfield, New Jersey.

National Standard Co., W. F. Harrah, Niles, Michigan.

MANUFACTURER'S PLEDGES IN ABEYANCE.

All rubber manufacturers were notified on October 26, 1918, as follows:

The question of pledges required by the Priorities Division of the War Industries Board is at present under consideration with a view to certain modifications. Until the matter has been definitely settled and until you are further advised, you may hold in abeyance all action previously required in relation to pledges.

Applications of Catalysis to Vulcanization.

By André Dubosc.

CAOUTCHOUCS contain besides pure gum a certain number of impurities of which the characteristics are:

1. Saponifiable or unsaponifiable resins with or without rotatory power.

2. Nitrogenous substances in which, besides the proteins isolated by Spence, we find enzymes the oxidizing action of which on the gum, in the presence of air, causes tackiness and destruction.

These substances, for a long time, have been considered injurious and attempts have been made, by washing and otherwise to eliminate them as completely as possible.

The production of chemically pure synthetic rubbers from isoprene revealed the impossibility of properly vulcanizing them and gave rise to the thought that the proteins and the resins which were lacking were essential in effecting vulcanization.

The same negative results were obtained with plantation gums from which, either during coagulation or by intensive washing, all foreign matters had been removed.

It therefore seemed quite important to allow a certain quantity of resins and proteins to remain in the gum so as to free the gum from destructive enzymes.

Following Weber's researches the importance of the proteins in rubber was suspected but their action was considered more physical than chemical, something like the action that Seligmann attributed to the elastic matter of caoutchouc.

On the basis of microscopic analysis, in which the proteins, dyed black by silver salts, are easily visible, Biffin maintained that they play an important part in coagulation, forming a network surrounding globules of pure gum.

Franck, after numerous experiments on *Hevea* latex, shared this opinion.

Other scientists, however, have shown that the proteins are not indispensable in obtaining a good coagulum from the latex.

Jong and Tromp de Haas, for instance, easily obtained the coagulation of the latex of *Castillioa* after removing the proteins by alcohol.

Spence and Crossly obtained perfect coagulation with latex considerably diluted with water, in which the proteins could not coagulate at the same time as the caoutchouc.

Victor Henry Zimmermann, after microscopic [illegible] concluded that the coagulation of the gum can take place when the proteins are not present.

Barrett declared that in the coagulation with acetic acid, as practiced in plantations, there are two phases, one rich and the other poor in proteins, and that in both phases coagulation goes on equally well.

All these studies dealt only with the physical part played by proteins and neglected their chemical effect, which is much more important.

The first observations along these lines were made by Lock and Bamber.

These scientists, studying the physical constants of purified plantation gums after vulcanization, found that the resistance to breaking of these caoutchoucs was in inverse ratio to their pure gum contents.

The importance of resins and proteins during the vulcanization was then indicated for the first time.

The part they play has been still more clearly described by Beadle and Stevens, and Lothar Weber, at the Congress of Applied Chemistry at New York, in 1912.

From their studies it results:

1. That a caoutchouc, completely free from resin after prolonged extraction by alcohol, does not vulcanize and that a minimum of three per cent of resin is necessary for vulcanization to take place.

2. That a caoutchouc, after losing its proteins, vulcanizes very poorly and very slowly; that its breaking strength, compared with an ordinary piece of caoutchouc, is reduced from five to one; and that the coefficient of vulcanization drops from 3.62 to 1.15.

Beadle and Stevens also established other facts of importance, viz.: that if one augments artificially the protein contents or those of nitrogenous matter in a mass of caoutchouc, vulcanization takes place more rapidly, the physical constants, particularly the breaking strength, are increased, and the coefficient of vulcanization becomes higher.

These valuable observations showed conclusively the chemical importance of resins and proteins in vulcanization, as accelerators and vitalizers. Their action is probably catalytic, for, although they clearly stated their results, neither Beadle and Stevens, nor Lothar Weber furnished any explanations.

Later work, done by Eaton and Grantham and published by them last July, has not only confirmed, but has shown the increasing importance of the part played by the proteins and by the resins in the vulcanizing process.

Eaton and Grantham have shown that, under the action of anaerobic bacteria, the proteins of caoutchouc are transformed into a substance which they have not isolated, but which, during vulcanization, diminishes the curing time, acting as an accelerator, and improves the physical constants, acting as a vitalizer. In the presence of antiseptics such as formaline, the bacterial transformation does not take place and acceleration does not occur, although there is a slight increase of the physical constants, which we shall explain later on. The same negative result is found if the caoutchouc is sterilized by steam or by freezing, which is easily explained by the fact that the microbic action on the protein is prevented. When acting similarly on other proteins, such as casein or the peptones, and the proteins precipitated from the serum, results are obtained which, though not identical, resemble acceleration and vitalization.

But it must be remarked that the results obtained are not dependent on the amount of nitrogen in the caoutchouc, and that a sample containing much nitrogen often behaves much worse than another containing considerably less. This is easily explained if we note that the nitrogen can react only under certain conditions determined by the microbic action.

This can all be understood very clearly by referring to the writings of Effront on the action of the proteins and of the diaminated acids under the influence of bacteria or rather of enzymes, which writings were probably unknown to Eaton and Grantham.

The principle announced by Effront is that if one causes the reaction, under proper conditions, of an enzyme or a diastase on a protein, it is divided into fat acids on the one hand and into amines or ammonium compounds on the other. Remembering the studies of Spence, we know that the protein of caoutchouc exists as a conjugated protein, probably a glycoprotein, which by hydrolysis, changes into glycosamine. It is almost certain that it is this substance which originates in the reactions pointed out by Eaton and Grantham, and that it reacts as an accelerator and a vitalizer.

These reactions are therefore due to an amine or to an aminated body, a valuable observation which allows us to understand the chemistry of the reactions to which we have referred.

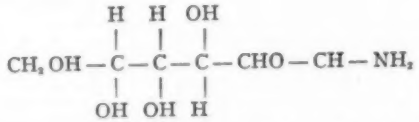
These facts having been stated and the action of the resins and the proteins, in the vulcanization, having been established, let us examine successively the reactions which are produced when we cause sulphur, at the temperature of vulcanization (135 degress C.), to react on these two substances.

The resins of caoutchouc are present as ethers of cholesterol, acetates of alpha and beta amyrine, acetate of lupeol, that is to say as ethers resulting from the action of a fat acid, acetic acid, on a secondary alcohol, the cholesterol. Under the influence of heat these ethers tend to decompose and the molecule of cholesterol, very complex, tends to split, giving rise to less complex products. This change takes place, as we can verify in the heating of the resins of jelutong, with an abundant liberation of hydrogen and acetylene.

At the temperature of vulcanization, this decomposition is only partial, but the quantity of hydrogen produced is sufficient, in the presence of sulphur, at 135 degrees C., to form considerable sulphydric acid. This reaction was noticed by one of the discoverers of vulcanization, Hancock, and confirmed by Payen, who mentioned it carefully in his studies on caoutchouc.

If, therefore, we study the action of resins on sulphur in glass, at the temperatures of vulcanization, we find that the result is the formation of sulphydric acid in abundant quantity. We shall see later what part this sulphydric acid can play in vulcanization.

The proteins of caoutchouc, isolated for the first time by Spence, appear as conjugated proteins, muscines or glucoproteins, which have been studied by Schmiedberg. They are formed by the union of a carbohydrate with an amine after the fashion of the amino acids, and by hydrolysis, under the action of the enzymes which always accompany it, they can be hydrolized, producing glucosamines:



If we prepare the protein of caoutchouc by the method of Spence and Kratz by dissolving crude gum in benzine in the presence of trichloracetic acid, and then submit the product thus obtained to enzymic action, either with the enzymes of caoutchouc, or with the amylase of Effront, we obtain a substance which behaves, in vulcanization, as the fermented proteins of Eaton and Grantham do and which, when analyzed, presents all the characteristics of glucosamine.

It combines with the isocyanate of phenyl, giving a substance which melts at 211 degrees C. With the phenylhydrazine, it gives a glucosazone, and with hydroxylamine a glucosamine oxime melting at 122 degrees C. Bromine water oxidizes it into glucosamic acid, and nitric acid into isosaccharic acid.

If we take this substance, which is only the product of the transformation of the protein under enzymic action in the caoutchouc, and heat it with sulphur, to the temperature of vulcanization, 135 degrees C., we shall find that it gives rise to:

1. Sulphydric acid;
2. Sulphocyanic acid.

The equation can be written as follows:

$$CH_2OH[CHOH]_3\ CH(NH_2)\ CHO + 2S \longrightarrow CNHS + H_2S.$$

Sulphydric acid is easily identified by acetate of lead and nitroprussiate of sodium, sulphocyanhydric acid by perchloride of iron and the protosalts of copper, which give an insoluble precipitate of sulphocyanate of copper.

Thus the action of resins and proteins on sulphur, at the temperature of vulcanization, forms sulphydric acid and sulphocyanic acid.

The formation of this last substance need not astonish us, for it always is formed when sulphur, nitrogenous products and derivatives of coal are heated together, as in the destructive distillation of coal which contains nitrogen, sulphur and carbon. It is produced also to a considerable extent in the wash waters and in the materials used in purifying illuminating gas, not unlike sulphydric acid.

How can these two substances, which are surely formed by the action of sulphur at 135 degrees C. on a caoutchouc containing a normal quantity of resins and of proteins, produce rapid vulcanization of the gum, increase its resistance to rupture and its polymerization?

Let us examine successively the cases of these two acids.

Harries has recently shown, bringing the theories of Weber and of Oswald into agreement, that vulcanization takes place in two phases: the first one, a phase of adsorption, in which the sulphur is extractible by acetone, but in which the caoutchouc passes from the metastable form to the stable form, characterized by the insolubility of its chlorhydrate in chloroform; then, a second phase, the chemical one, in which the adsorbed sulphur combines with the gum, giving a sulphide of polyprene and becoming unextractible by acetone.

Remembering the principles of colloidal chemistry, sulphur to be adsorbed by a colloid, such as caoutchouc, must itself be in a colloidal state, S_2, but it is introduced into the mixture to be vulcanized in a polymeric state, S_8; therefore, our first task must be to break up its aggregate and bring it to a colloidal state.

Under the influence of heat, this transformation takes place, but slowly and in proportion to the means to be acted on. That is why we can reduce the time necessary for vulcanization by increasing the quantity of sulphur used.

Sulphydric acid, produced by the reactions of the resins and the proteins on the sulphur enables us to obtain colloidal sulphur much more easily.

If we heat sulphur in the presence of air, or of a substance containing oxygen, such as an oxidized caoutchouc or a metallic oxide, we produce sulphurous acid and the sulphide corresponding to the oxide used; it is the reaction which is constantly used in vulcanization with litharge or with oxide of magnesia, both of which are excellent accelerators.

The reactions are produced under the following equations.

$$16PbO + 3S_8 = 16PbS + 8SO_2.$$
$$16MgO + 3S_8 = 16MgS + 8SO_2.$$

The reaction is produced more or less rapidly according to whether the thermic equation, corresponding to the chemical equation, is positive or negative.

With litharge the equation is exothermic and produces +202 calories, the reaction is very rapid and the acceleration is highly accentuated.

With magnesia, the equation is endothermic and requires the addition of 328 calories, but this fault is compensated for by the considerable quantity of occluded air which light magnesia contains. It is to this occlusion that this substance owes its accelerating power.

With oxide of zinc the reaction is clearly endothermic, and as this substance contains little or no occluded air, it remains a simple charge and has no accelerating action.

The same is the case with most of the metallic oxides whose thermic equation is negative, in the case of formation of sulphurous acid.

In presence of sulphydric acid, the sulphurous acid thus produced reacts in the production of colloidal sulphur and of water.

$$SO_2 + 2H_2S = 2H_2O + 3S.$$

It is the classical reaction which is applied constantly in the purification of illuminating gas.

The formation of colloidal sulphur adsorbable by caoutchouc is thus explained, its rapidity of formation being the function of the rapidity of formation of sulphurous acid.

On the other hand, we must not forget that sulphydric acid

and sulphurous acid are gases; they therefore obey the laws of Graham and diffuse through the mass of caoutchouc with a rapidity which is inversely proportional to the square root of their densities.

The reaction of formation of the colloidal sulphur, which results from their reciprocal action, is produced not on the surface but in the whole mass of the caoutchouc. Now, the adsorption, first phase of the vulcanization, is the more rapid the better the sulphur is mixed in the mass. We can easily understand that, under conditions similar to those which we have described, the adsorption would take place very rapidly and an acceleration of vulcanization would take place as a result.

As has been shown by these summary notes, the presence of resins in virgin caoutchouc results in rendering easier and more rapid the formation of adsorbable colloidal sulphur, the formation of which is very slow under the influence of heat alone. The resins accelerate vulcanization, as litharge does; it transforms polymeric sulphur into sulphurous acid, they transform it into sulphydric acid, diffusable gases which, reacting one on the other in the interior of the mass of gum, produce adsorbable colloidal sulphur, the only sulphur that can vulcanize caoutchouc.

(To be continued.)

What the Rubber Chemists Are Doing.

DEVULCANIZATION OF CAOUTCHOUC BY HEXAMETHYLINE TETRAMINE.

AN interesting experimental demonstration of the devulcanization of caoutchouc by formation of hexamethyline tetramine in the gum is described by André Dubosc in "La Caoutchouc et la Gutta-Percha," August 15, 1918, of which the following is an abstract.

Previous experiments have shown that hexamethyline tetramine is capable, under proper conditions of quantity and pressure, of removing sulphur chemically combined with caoutchouc.

In the present demonstration advantage was taken of the fact that caoutchouc is easily penetrated by gases.

A sample of vulcanized caoutchouc was reduced to 100 mesh and by prolonged acetone extraction all free sulphur was removed; extracted with cold ammonium sulphide and thoroughly washed; extracted with chloroform and with alcoholic potash followed by washing with 95 per cent alcohol so as to remove all factices which contain combined sulphur. The sample thus prepared being successively treated alternately with ammonia gas and formaldehyde gas, the formation first of trimethyline triamine was effected with liberation of water vapor and heat. This body having been formed, the caoutchouc was made to absorb a fresh quantity of ammonia to the point of saturation, followed by absorption of more formaldehyde gas. Pentamethyline tetramine was thus formed, also a certain quantity of water vapor and rise of temperature resulted. Then ammonia gas was again absorbed in excess followed by formaldehyde. The combination between the two gases and the pentamethyline tetramine produced by the preceding reaction took place almost immediately with evolution of heat, and hexamethyline tetramine was formed. The caoutchouc noticeably increased in volume, and gained practically 12.75 per cent in weight.

The rubber was next subjected in an autoclave for six hours to steam pressure at seven atmospheres. Following this the rubber was washed and sheeted until perchloride of iron gave no reaction of sulphocyanic acid. On a sample dried at 100 degrees C. the combined sulphur was determined by the Henriques-Bertrand method. Before treatment the rubber showed 2.723 per cent combined sulphur; after treatment, 2.478 per cent, or a loss of 92.104 per cent of the combined sulphur.

VULCANIZATION RESEARCHES.

Vulcanization experiments, carried out during the last quarter of 1917 in the Department of Agriculture, Federated Malay States, as reported by B. J. Eaton, resulted as follows:

The retardation of vulcanization caused by an excess of acetic acid in the case of slab is comparable with the results obtained with crêpe, namely, very little.

Sodium bisulphite slightly retards the rate of cure of both crêpe and slab. The use of sodium bisulphate in slab is to obtain a pale-colored, rapidly curing rubber, superior in tensile properties to ordinary pale crêpe. This cannot be effected by allowing the coagulum to mature in the open, since darkening occurs, probably on account of the large amount of oxidizable substances and the greater amount of oxidizing enzyme remaining in the slab.

Since the researches carried out by the writer have shown the presence of vulcanization accelerators to be actually present in latex and retained in the raw rubber under certain conditions of preparation, in addition to those formed by the decomposition of the proteins in the maturation of slab and rolled up wet sheet, etc., it was considered advisable to ascertain whether these accelerators were removed to any extent when the matured slab was subsequently crêped and dried. Experiments were therefore carried out in which the matured slab was cut up into thin worms and air-dried and subsequently mixed directly with sulphur for vulcanization. Comparative samples of matured slab were converted to crêpe and dried.

Little or no difference was obtained between the rate of cure of the slab cut into worms and dried and that converted into crêpe, which shows that little or none of the vulcanizing accelerators is removed by the normal washing and crêping of the matured slab. In fact, the crêped slab in each series of the experiment vulcanized slightly more rapidly than the "wormed" slab. It was observed that a certain development of "spot" disease occurred invariably in the "wormed" slab (after worming), due to the exposure to the air combined with the slow drying of the worms, and this may have been responsible for the slightly retarded cure, since the writer has shown previously that the organisms causing "spot" disease retard the rate of cure of a fast-curing rubber.

The rates of cure of 16 specimens of sheet, known to have been prepared by coagulation of the latex with alum, varied from one and three-quarters to four and a half hours, which gives a very good idea of the lack of uniformity of such rubber.

COAGULATION WITHOUT CHEMICALS.

In a recent lecture delivered before the Malang Agricultural Society, reported in "De Indische Mercuur," G. J. Zuyderhoff discussed a half dozen principal methods employed for the coagulation of rubber latex, namely: (1) the wild Pará method, its imitation methods by (2) D. MacGillavry, (3) Sanders Birnie, (4) Wickham, (5) Lash van Goenoeng Toengal, and (6) Clignett's electrical method. The author considers that none of these methods of coagulation are entirely satisfactory and has devised a new method without the use of chemicals. His reasons as stated for undertaking this work were: the high price of acetic acid; the possibility of increasing the intrinsic value of the rubber product, and the preservation of occluded serum in the coagulum and its putrefaction into products of value affecting the rate of cure and physical properties along the line of research developed by Eaton and Grantham.

Zuyderhoff's method as quoted from his lecture is as follows:

The latex is heated in an enameled coagulating basin over a charcoal fire until full evaporation has taken place. The cakes thus produced are put into a long wooden case and air is blown in over them. They are alternately submitted to heat and dry cold and then the mass is tested in the open air.

With a heating appliance placed beneath the wooden case the best results were obtained by (1) heating very moderately underneath and blowing dry air above the cakes, (2) by simply sending heated air over the cakes.

The principal difficulty is to prevent the formation of a film on the upper surface which hinders coagulation of the mass beneath it. This can be done by keeping the upper surface in movement, using the air current to actuate a fan connected to a light wooden rod running the length of the wooden case above the cakes, and having scrapers attached to it that lightly touch the upper surface and keep it in motion. It seems that this evaporation method succeeds very well in a crêpe factory and that no complicated installation is necessary.

The making of "slab" rubber is very simple under proper control of the putrefaction. To do this it is desirable to allow the process to take place in a separate building to prevent all kinds of infection. The upper surface of the cakes should be washed with clean water once every 24 hours. The machines which work up the slabs should also be carefully disinfected.

The author states that the color of the crêpe produced by his method was at first very irregular, but this difficulty has been since almost overcome. Mr. Zuyderhoff intends to enlist the aid of a government experiment station for aid in further developing his process.

PURITY OF CASTOR OIL.

The following method for determining the purity of castor oil, reported by "Chemical Abstracts," has been worked out by Chercheffsky. It is based on the critical temperature of solution which is defined as the temperature at which a fat in a suitable solvent becomes turbid when this temperature is above the boiling point of the solvent. The method is as follows: A glass tube ten centimeters long and eight millimeters wide is closed at one end, ten drops of castor oil and 40 drops of ethyl alcohol of 0.8481 specific gravity added, and the tube sealed and attached to a thermometer and placed in a glycerol bath. The bath is then gently heated, using the thermometer as agitator. When a turbidity persists the temperature is read. This is constant for every fat. The following table shows results with mixtures of castor oil and other oils. The critical temperature for castor oil is 66 degrees, and as small an amount as two per cent. of foreign oil raises the critical temperature from three to five degrees.

	Per cent of foreign oil in castor oil.								
	2	5	10	15	20	25	50	75	100
Kind of Oil.	Critical Temperatures.								
Colza	71°	76°	82°	92°	109°	129°	155°	188°	202°
Peanut	70°	74°	81°	90°	105°	120°	149°	186°	197°
Cottonseed	71°	74°	81°	89°	97°	104°	138°	161°	172°
Linseed	69°	74°	79°	85°	94°	105°	129°	152°	163°
Fish	70°	74°	79°	86°	92°	103°	133°	158°	167°

SEPARATION OF THE INSOLUBLE MATTER IN CRUDE RUBBER.

For the separation of the insoluble matter in crude rubber Stevens and Clayton Beadle employ phenetol. A gram of rubber in small pieces is placed in a test tube with ten cc. of solvent and heated slowly, so as to reach 100 degrees C. in an hour, and 140 degrees C. in the next half hour. During this heating a peculiar odor is given off, resembling that of toasted (broiled) meat. After cooling, the solution is diluted with 100 cc. of benzine and the insoluble matter allowed to settle. It is washed twice by decantation with benzine, transferred on a tared filter, washed again with benzine, then with alcohol and water, and dried.

CHEMICAL PATENTS.

THE UNITED STATES.

TREATMENT OF TIRES—Tires composed of rubber or rubber-like materials and fiber are placed in open molds in a vulcanizer and entrapped air, gases, and fluids extracted therefrom at an elevated temperature by vacuum, before closing the molds and vulcanizing. (Raymond B. Price, assignor to Rubber Regenerating Co., both of New York City. United States patent No. 1,276,416.)

BRAKE LINING AND PROCESS OF MAKING.—The method consists in impregnating a body of fabric with a solution containing asphalt, an oxide of lead, sulphur, and an oxidation accelerator; and then vulcanizing the impregnated fabric under high heat and pressure. (William D. Pardoe, assignor to Thermoid Rubber Co., both of Trenton, New Jersey. United States patent No. 1,277,108.)

THE DOMINION OF CANADA.

PIGMENTED RUBBER.—Process and material of coating pigment dust on an uncured rubber surface, and vulcanizing it under a superimposed layer of metal such as aluminum in sheet or powder form. (The Canadian Consolidated Rubber Co., Limited, Montreal, Quebec, Canada, assignee of Willis A. Gibbons, Flushing, Long Island, New York. Canadian patent No. 184,218.)

THE UNITED KINGDOM.

WATERPROOFING COMPOSITIONS.—For tarpaulins, etc., gum tragacanth dissolved in water is mixed with lead acetate or aluminum sulphate. These salts may be mixed and the clear solution of aluminum acetate be applied to the fabric, or the fabric may be treated with the solutions separately and lead sulphate precipitated in the fibers. For lighter fabrics, gum tragacanth is mixed with soap dissolved in alcohol and then with aluminum sulphate or lead acetate. (J. D. Williams, 15 Bodford street, Rhyl, Denbighshire. British patent No. 114,494.)

INDIA RUBBER.—Vacuum treatment for removal of fluids from unvulcanized rubber. (W. J. Mellersh-Jackson, 28 Southampton Buildings, London. [General Rubber Co., 1790 Broadway, New York City, U. S. A.] British patent No. 116,322.)

INDIA RUBBER.—Coagulated rubber, gutta, chicle and like latex is treated with a selection of organic compounds in order to form in the coagulum an insoluble layer to prevent the passage through it of colloidal nitrogenous matter. (W. J. Mellersh-Jackson, 28 Southampton Buildings, London. [General Rubber Co., 1790 Broadway, New York City, U. S. A.] British patent No. 116,323.)

LATEX TREATING.—A vacuum process of drying coagulated or uncoagulated latex. (W. J. Mellersh-Jackson, 28 Southampton Buildings, London. [General Rubber Co., 1790 Broadway, New York City, U. S. A.] British patent No. 116,324.)

INDIA RUBBER.—Rubber latex is treated with a member of the benzene series or a derivative thereof, in order to conserve its contained nitrogenous and other constituents and to prevent the formation of slime. For instance, the latex may be treated with 0.2 per cent of beta-naphthol before or after the addition of sulphur, and the product may in addition be given a surface treatment with an alcoholic solution of beta-naphthol. (W. J. Mellersh-Jackson, 28 Southampton Buildings, London. [General Rubber Co., 1790 Broadway, New York City, U. S. A.] British patent No. 116,326.)

AUSTRALIA.

WOOD-PAVING JOINT.—A joint of rubber and cork composition, intended to counteract the expansion and contraction of blocks in wood pavements. (W. Stawell and H. C. Nankwell, attorneys of I. Manchester, Victoria. Australian patent No. 4,879.)

OTHER CHEMICAL PATENTS.

THE UNITED STATES.

NO. 1,272,040. Method of vulcanizing molded rubber articles. L. J. D. Healy and A. A. Frank, Milwaukee, assignors to The Federal Rubber Co., Cudahy—both in Wisconsin.
1,274,091. Manufacture of sheet rubber. W. Seward, Toronto, Ont., Canada.
1,273,954. Coating composition. C. P. Townsend, Washington, D. C., assignor to General Bakelite Co., New York City.
1,276,113. Leather substitute and process. R. B. Respess, New York City.
1,276,349. Tire filler. F. A. Hager, Portland, Ore.

THE DOMINION OF CANADA.

183,662. Dental rubber compound. C. J. R. Engstrom, Los Angeles, Cal., assignee of S. C. Supples, East Orange, N. J.—both in the U. S. A.
184,217. Vacuum treatment to withdraw fluids from unvulcanized rubber, etc. The Canadian Consolidated Rubber Co., Limited, Montreal, Que., Canada, assignee of R. B. Price, New York City, U. S. A.

CEYLON.

1,547. Improvements in adhesive rubber composition. General Rubber Co., New York City, U. S. A.
1,550. Separating rubber from rubber-containing material. General Rubber Co., New York City, U. S. A.

1,551. Treating latex, process and product. General Rubber Co., New York City, U. S. A.
1,557. Treatment of rubber-like and similar materials. General Rubber Co., New York City, U. S. A.

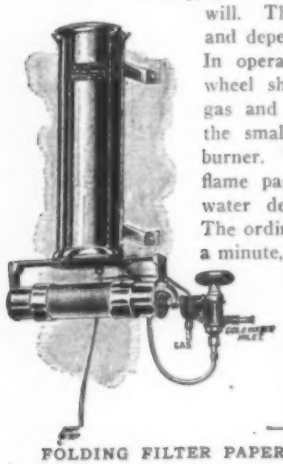
NEW ZEALAND.

39,564. Rubber substitute and process. The Western Rubber Co., 1143 Dock street, assignor to M. Gregory—both of Tacoma, Washington U. S. A.

LABORATORY APPARATUS.

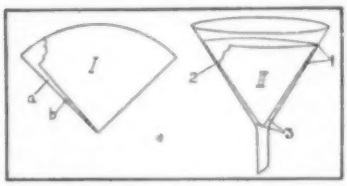
LABORATORY WATER HEATER.

A CONTINUOUS supply of hot water is very desirable in the laboratory, particularly if it is always obtainable at will. The illustration shows a very neat and dependable apparatus for this purpose. In operation a simple turn of the hand wheel shown at the right turns on both gas and water, the gas being ignited by the small pilot light projecting over the burner. The burner is gauze-covered. The flame passes up the stack and heats the water descending through a spiral pipe. The ordinary size will heat a pint of water a minute, from 50 to 130 degrees F. Other sizes are furnished. All are compact and easily mounted as wall attachments over the laboratory sink or in some other convenient location. (Buffalo Dental Manufacturing Co., Buffalo, New York.)



FOLDING FILTER PAPERS FOR RAPID FILTRATION.

The following practical method of folding and placing quantitative filter papers in funnels has been described by H. A. Noyes in "The Chemist Analist." The filter paper is folded as shown in I of the cut. The amount the paper is folded past (a) depends on the funnel used. The corner is torn off so that when placed in the funnel the crease (b) has no chance of drawing in air which lessens the rate of filtration. The paper is shown in II folded in this way and properly placed in a funnel. In this position about 300 cc. of filtrate per minute is possible. The rate of filtration depends on these points: (1) good contact of paper with funnel; (2) the absence of a fold of paper extending to the top, thus preventing suction down the side of the filter; (3) increased filtration pull due to point of the filter being centered over the outlet but not touching the sides of the funnel.



ENGALITH, THE ENGLISH GALALITH.

Galalith, a German composition product of casein, is now being manufactured by three British concerns under the name "Engalith." Large quantities of this substance are being made for war purposes, and for export to America, France, Spain, and Italy as well. It is produced in rods, tubes, and sheets, and in some sixty different colors, and is worked up into a great variety of articles for which hard rubber is commonly used. Being slightly hygroscopic, however, it is not adapted for articles that have to come into frequent contact with water or acid, such as knife handles, bathroom tiles or basins, fountain pens, fishing tackle, storage battery cells, and tooth and nail brushes.

Briefly, the process of making Galalith consists in rendering the casein insoluble by the addition of salts and acids. The product is then dehydrated and dried, when, by the addition of formaldehyde, Galalith is obtained. The process is protected by numerous patents.

REPORT OF THE COMMITTEE ON THE POISONOUS NATURE OF SOME ACCELERATORS, AND PRECAUTIONS REGARDING THEIR USE.[1]

By Richard D. Earle, Chairman.

OWING to the increasing use of certain organic compounds as accelerators in the vulcanizing of rubber goods, many of which are marketed under misleading trade names, it is desirable to call the attention of rubber manufacturers to the poisonous properties of some of these products and to the fact that disagreeable factory experiences may result unless due precautions are taken.

The more common accelerators used to-day are aniline, hexamethylene-tetramine, para-phenylenediamine, para-nitroso dimethylaniline and thiocarbanilide.

ANILINE.

SYMPTONS OF POISONING. In small amounts, pallor, vertigo, and blueness of lips result. In large doses muscular weakness, strangulation and death.

ANTIDOTES. Fresh air, change of clothing, artificial respiration. Use of milk in diet is recommended. Use of alcoholic stimulants predisposes to poisoning and is excessively injurious after poisoning has occurred.

HEXAMETHYLENE-TETRAMINE.

SYMPTOMS OF POISONING. Rash and inflammation of skin which has been in repeated contact with stock containing this material. In severe cases blisters filled with watery fluid result.

ANTIDOTE. Cleanliness and care in regard to clothing are the best preventives. Change of occupation will cause the rash to disappear, leaving no permanent effects.

PARA-PHENYLENEDIAMINE.

SYMPTOMS OF POISONING. Inhalation of the dust gives the symptoms of a common cold with sneezing and extreme depression. In larger quantities death with symptoms similar to those of ptomaine poisoning. This is probably the most poisonous of all the accelerators proposed up to date.

All efforts should be made towards prevention of inhalation of dust, by means of suction hoods over the mixing mills.

PARANITROSO DIMETHYLANILINE.

SYMPTOMS OF POISONING. This causes a severe inflammation of the skin, increasing in severity according to the exposure.

ANTIDOTE. Change of occupation.

THIOCARBANILIDE.

SYMPTOMS OF POISONING. This material decomposes when heated to vulcanizing temperatures with the formation of phenyl mustard oil, the fumes of which cause pallor, blueness of gums and lips. Probably the least poisonous of the common organic accelerators.

ANTIDOTE. Fresh air.

RECOMMENDATIONS.

1.—Cleanliness is essential. The hands should be washed before eating. Before leaving the factory a shower bath should be taken and a complete change of clothing made.

2.—Mixing mills should be provided with adequate suction hoods, in which an efficient draft is maintained.

3.—Ventilation of press rooms, especially if thiocarbanilide is used.

4.—Immediate attention to early symptoms and, if possible, temporary change of occupation in the factory.

5.—Periodical medical examination of employes in mixing and compounding departments, and an educational campaign among employes in regard to non-use of alcohol and chewing tobacco while at work.

6.—In the case of accelerators sold under trade names it is suggested that steps be taken to ascertain the nature of the material.

[1]Read at the annual meeting of the Rubber Section of the American Chemical Society held at Cleveland, Ohio, September 11-12, 1918.

The Plantation Rubber Position.

By a Special Correspondent.

WITHOUT question crude rubber prices, supply and demand are the matters of chief present concern, not only to rubber growers and shareholders, but to brokers, merchants and others vitally connected with the plantation industry. The gradual accumulation of large stocks of crude rubber in the East, due to lack of ocean tonnage and the American restriction of imports, together with the consequent continuation of low prices, is causing considerable depression and anxiety. Various circles view the situation in a different light and considerable feeling is developing between the several important producing countries.

Discussion is still rife regarding the restriction of plantation rubber output, but without legislation it would seem to be impossible to enforce it. The 20 per cent reduction agreed upon by members of the Rubber Growers' Association, and to which they have adhered to the extent of 70 per cent of the acreage controlled by members of the association, has not only failed to stabilize the situation, but has opened the way to so-called profiteering on the part of non-members that vitiates the sacrifice to a considerable degree and greatly complicates an already vexed situation. Steps of a much more drastic character appear to be necessary if prices are to be restored to anywhere near their former level, but great difference of opinion exists as to what they should be.

Put briefly, the question for producers is whether to fall in line with the restriction plan of the Rubber Growers' Association, or to endeavor to acquire as much as possible of the trade that is going.

Many small producers, and particularly growers in Ceylon and India, assert that the policy of restriction is designed chiefly in the interests of the big Malayan companies which desire to maintain prices at a high level and let the rubber remain in the trees rather than sell it at 24 or 25 cents per pound, the prices at which the highest grades have been going in Singapore and Colombo. Another group of young producers believe that ocean tonnage is not being allotted fairly and claim that certain large growers and leading merchants have been able to ship considerable consignments when freight space for groups of small growers was either denied or greatly curtailed. They point out that activity in Eastern markets will be seriously reduced if control of the available tonnage by any group of growers is permitted, and state that it will soon be necessary for Eastern governments to intervene, in order that all individual and company planters shall have shipping facilities in proportion to their possessions.

It is common knowledge that the Council of the Rubber Growers' Association has approached the British Government with a view to bringing about compulsory restriction of output accompanied by the fixing of a minimum price in the East. It is claimed that the 20 per cent curtailment covering only part of the acreage in bearing is no longer adequate to meet the situation, but that nearly a 60 per cent reduction is now called for to avert calamity; also that legislation should be resorted to because those who opposed restriction to any extent might now fail to realize the gravity of the present position. While the British Government is giving sympathetic attention to the proposals, it is felt that the negotiations are so protracted as to minimize the relief sought.

Meanwhile many interested parties are engaged in active propaganda and are advocating missions to visit Eastern rubber-producing countries to promote branch organizations of the Rubber Growers' Association, and make the rupee, dollar and guilder companies and private owners realize that membership in a great international organization consisting exclusively of rubber planters is to their interest, in order that a concerted effort can be made to meet abnormal conditions. They assert that had these companies cooperated with the Rubber Growers' Association and curtailed production 20 per cent, the present demoralized condition of the market would not have occurred, and they paint a very sorry picture of the future of the plantation industry unless a strong organization representing unity of purpose can be effected quickly. Some London interests apparently feel that better support should be accorded by the East and point out that in the absence of a strong organization that can so control production as to guarantee fair prices, the industry cannot be conducted on sound and permanent lines, and that efforts to improve cultivation, tapping and other estate methods through research will prove of secondary importance.

The advocates of restricted production appeared to think that curtailment of American imports on the basis of 100,000 tons per annum would quickly settle the matter as they wished. They pointed out that the world's production in 1918 without restriction was estimated at 300,000 tons, and that if America were going to take only 100,000 tons, and Great Britain only 25,000 tons, the total world's consumption would be only some 160,000 tons, whereas, despite existing restrictions, the rubber output for the current year will not fall far short of 200,000 tons, leaving a surplus of about 40,000 tons. They believed it was clearly the duty of the Straits Settlements and Federated Malay States authorities to prevent the industry which had brought prosperity to Malaya from drifting into financial chaos, and that if the desired results were not forthcoming, the strongest possible pressure should be exerted on the Colonial Office.

As to the advisability of government control, London interests are by no means agreed, however. Prominent bankers and others have openly said they would rather weather any storm than encourage government control because it might be exceedingly difficult to shake off that control after the war. In Ceylon and India, too, most producers take the position that if the future brings better results, all concerned will rejoice in not having resorted to panicky legislation to relieve a temporary chaotic condition, but if it is found that there is no chance of the rubber being shipped, they agree that prompt measures will have to be taken by the planters themselves to restrict production.

Another faction among the large planting interests is openly advocating maximum production and, if necessary, driving small producers into a position little short of ruin. While opponents of this policy admit that rubber growers as a whole will find it exceedingly difficult to meet abnormal market conditions as long as hundreds of small growers are not brought under control, they point out that crushing small and young producers would result merely in a change of ownership, large companies and probably Americans purchasing them and increasing their productive capacity. Complete control of every plantation unit, they claim, is essential to the salvation of the industry.

American restriction of crude rubber imports figures largely in the calculations. All available information points to the probability that the United States Government will only provide rubber for war purposes and essential national needs, and that there is little, if any, likelihood of an early relaxation of the present import restrictions. It is felt that the curtailment of pneumatic tire production to 50 per cent of last year's output in corresponding months may foreshadow similar curtailment in other lines of rubber goods. Furthermore, the ruling of the War Trade Board stipulating that 50 per cent of the imports for August and

September shall come from South and Central America indicates that Eastern plantations will suffer owing to their long distance from the world's greatest manufacturing centers of rubber goods.

Although the maximum prices of first latex crêpe and smoked sheet ribbed have been fixed respectively at 63 and 62 cents per pound by the United States Government, these sorts are being sold in the East at 25 and 24 cents, and in many instances at less than the cost of production. It must not be supposed, however, that merchants and brokers are pocketing the difference of 38 cents. New York prices of plantation rubber fluctuate greatly, but are considerably below the maximum prices fixed by the Government, and by purchase in the East, American buyers have been able to obtain their raw material at a lower price than British manufacturers, despite the fact that Great Britain is the largest owner of rubber plantations. This, of course, is largely due to the ocean tonnage which until recently has been available to the United States as against the very restricted amount of British tonnage. And it explains the heavy American stocks in factories, warehouses and in transit, which were announced to be 83,010 tons as of June 30. With London prices ruling about 24 cents higher than those in the East, British manufacturers obliged to purchase their supplies in the London market are placed at a great disadvantage in competition with American firms.

Geographical position and the relative cost of production in various countries are becoming important factors in establishing the average prices realized by growers. For some time past Ceylon appears to have been the favored country, not only because it is probably the cheapest producing country in the world, but very largely on account of more frequent shipping opportunities for consigning rubber to London. On the whole, Colombo and Singapore seem to have enjoyed slightly higher prices than other Eastern markets, Batavia suffering somewhat owing to its position and increasing freight difficulties.

It is natural in the circumstances that opinion in Ceylon should differ somewhat from that of rubber planters elsewhere. Growers there are doubtful that restricted production in Ceylon is necessary, because American buyers, as usual, will naturally buy in the cheapest market. They say that if the present demand for rubber were normal it is doubtful whether the Rubber Growers' Association either could carry out any scheme of restriction, or would consider it wise to attempt to do so. It would probably decide to let the price find its natural level, with the result that many present sources of supply would immediately cease to exist.

Ceylon growers point to the fact that whereas it was widely predicted that a drop in price to about 60 cents per pound would completely eliminate Brazilian rubber, yet although the price has often been lower, this long-threatened industry continues to flourish and supply approximately 40,000 tons annually to various markets. It is believed, however, that if the value were to drop below 48 cents, Brazilian producers would be in a bad way. Were this to happen in normal times it would mean that production had definitely overtaken consumption, which is not the case. Last year the world consumed nearly 240,000 tons of rubber, and if the Central Empires and Russia could obtain all the rubber they want, supplies would be short even on the estimate of possible production. The conclusion is therefore plain that notwithstanding the immense consumption of rubber for war purposes, the war has greatly retarded the industry.

Stocks in Sumatra, Java and Singapore are extremely heavy and there is every indication that more rubber is being produced than can be shipped and consumed under present war conditions. Stocks in London and New York are large considering the restrictions. Unless rubber growers as a whole can get together quickly on a policy of restricted output, or the British Government comes to the rescue with such restriction, price fixing, or both, by legislation, little prospect of prices in the East returning to their normal is to be seen.

Some activity in the forward market for next year and more distant dates has been assumed in certain quarters to indicate that American imports will not be decreased below the 100,000 tons basis. The prices offered for long contracts have been around 30 cents per pound, and although many buyers appear ready to close at that figure, few growers have availed themselves of the opportunity. It is noticeable that many of these would-be buyers desire to arrange for a considerable period of storage, and the suggestion that the names of all such forward buyers be scrutinized with unusual care is a wise one. While many doubtless take only a speculative interest, present market conditions provide an unparalleled opportunity for enemy firms through their agents to purchase rubber at very near cost of production and to carry it as long as necessary with little risk of losing anything thereby.

Viewing the present situation from every angle, and with due regard to the apparent inability of rubber planters as a whole to take concerted action, and the hesitancy of the British Government to intervene, one conclusion stands forth indisputably. It is that the enormous profits of past years in rubber planting are history, and that the time has come when growers must readjust their ideas of rubber values and school themselves to be content with smaller margins of profit such as are customary in the case of most other tropical products. It remains to be seen if the crisis will result in the establishment of factories for the manufacture of rubber goods in Malaya, Ceylon, India or the Dutch East Indies. If such factories supplied only the requirements of the Middle East, an immense saving in ocean tonnage would result.

RUBBER IN UNITED STATES COMMERCE.

NOTEWORTHY changes have been caused by the war in rubber imports and exports for the fiscal year ended June 30, 1918. The year's rubber imports were 389,599,015 pounds, value $202,800,392; the previous year's imports amounted to 333,373,711 pounds, value $189,328,674; an increase in weight of 56,225,304 pounds, and in value of $13,471,718 in favor of 1918.

The majority of the year's imports again came from the Far East (almost entirely plantation rubber), the total weight being 311,909,581 pounds, value $168,829,521, as compared with 181,431,778 pounds, value $104,232,552, in the year ended June 30. The great increase in weight and value, 130,477,803 pounds and $64,596,969, can, to a great extent, be accounted for by the need of avoiding the submarine zone around Great Britain. The imports from London and Liverpool fell to 21,926,945 pounds, value $12,793,606 from the figures for 1917 (ended June 30 of that year), which were 78,742,217 pounds, value $51,851,269.

Brazil, largely owing to shipping difficulties, has not done well during the last fiscal year, having sent us only 41,277,914 pounds, value $14,307,158, as compared with 56,818,966 pounds, value $25,654,924, the previous year. The figures for the year ended June 30, 1916, were 54,968,227 pounds, value $25,150,493.

Shipping difficulties also caused imports from Portugal to drop to the very low figures of 538,076 pounds, value $220,133, from 3,719,703 pounds, value $1,439,498, for the previous year. Imports of jelutong (Pontianak), duty paid, amounted to 9,994,571 pounds, value $501,450, from July 1, 1917, to October 31, 1917, while from November 1, 1917, to June 30, 1918, under its classification as duty free we imported 7,481,292 pounds, having a value of $474,366. Balata imports, which had been much greater in 1917 than in 1916, sank for the year ended June 30, 1918, to figures below those for 1916; for the last fiscal year the figures are: 2,449,881 pounds, value $1,278,610. The improvement in the Mexican situation is one of the chief reasons for the very great increase in the 1918 imports of guayule, 4,307,539 pounds, value $1,341,095, as compared with the imports for the year ended June 30, 1917, which were only 2,854,372 pounds, value

$764,484. Shipping difficulties have caused a further remarkable dimunition in the imports of the Far Eastern product gutta percha; for the year ended June 30, 1918, they were only 1,151,312 pounds, value $147,323; the previous fiscal year we had imported 2,021,794 pounds, value $332,223, and in the twelve-month ended June 30, 1916, 3,188,449 pounds, value $342,226.

The decrease in scrap rubber imports is striking; for the year ended June 30, 1918, we imported only 13,980,303 pounds, value $1,019,222; the previous year we imported 20,517,328 pounds, value $1,569,448; in 1911-1912 rubber scrap imports amounted to 26,293,192 pounds, value $2,095,065.

The total imports of india rubber, gutta percha and allied gums for the year 1918 were 414,983,610 pounds, value $206,542,236, against 405,431,069 pounds, value $194,688,303, for 1917.

Exports of india rubber for the year ended June 30, 1918, amounted to about one-third less than for the previous year, the figures for 1918 were 8,208,280 pounds, value $4,274,543, while for 1917 they were 12,355,898 pounds, value $7,304,820. The difference between the imports and exports of india rubber for the year 1918 is 381,390,735 pounds. Allowing for the fact that the stocks in store at the beginning of the year and those carried over at the end of the year are unknown, these figures give some idea of the United States' consumption of rubber.

RUBBER GOODS EXPORTS.

The exports of manufactured rubber goods for the year ended June 30, 1918, amounted to $33,343,181, against $31,105,075 for the previous fiscal year, being an increase of $2,238,106.

The value of the automobile tires exported during the year was $13,977,671, as compared with $12,330,201 for the year ended June 30, 1917. Tire exports to France rose from $425,132 (1917) to $661,648 (1918). During the same period exports to Great Britain sank from $2,636,654 to $618,071. The value of the tires sent to Argentina was almost as great as that of those that went to Canada. In 1918 Argentina took tires of a value of $1,650,340 (in 1917, $1,301,344), and Canada imported $1,766,518 worth (in 1917, $1,485,939). Cuban imports were $1,019,915 in 1917 and rose to $1,336,233 in 1918. Two notable increases were to New Zealand and British South Africa. New Zealand imported $946,804 worth in 1918, against $689,705 in 1917. South African imports amounted to only $391,211 in 1917; they were $693,065 in 1918. Exports of belting, hose, and packing again increased considerably in 1918, amounting to $4,578,396 as compared with $3,532,384 in 1917. During the year exports of rubber boots increased phenomenally, while exports of rubber shoes decreased by about 25 per cent. In 1918, boot exports came to $4,861,213; in 1917 they amounted to only $1,483,379 (1,559,598 pairs in 1918, 600,455 pairs in 1917); in 1918, shoe exports decreased to $913,128, against $1,716,225 in 1917 (1,244,170 pairs in 1918, 3,356,484 pairs in 1917). The exports of insulated wires and cables in 1918 were in value $5,716,275, compared with $7,192,204 for 1917.

AGATIT.

A new rubber-like material, said to be, in fact, a new regenerated rubber product, has been perfected at the University of Leipzig. It is supplied either in emulsion or colloidal solution, for convenience in many applications, or as a solid. The latter form is said to be much used in packing for condensers and on U-boats. It also serves successfully as a substitute for leather as it can be nailed or sewed. Rubber gloves for medical purposes are made largely of agatit. ("Automotive Industries.")

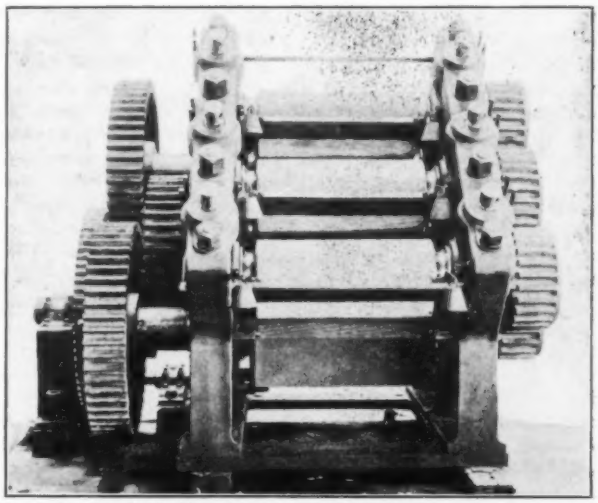
RUBBER TIRES IN THE FEDERATED MALAY STATES.

Oldsfields Dispensaries, Limited, Ipoh, Federated Malay States, are preparing to manufacture rubber tires and other allied products. Activity in rubber manufacture in the Far East is no doubt due at the present time to the prevailing high prices and shipping difficulties, and other rubber factories will probably be established in the same general locality.

THE EXTRACTION OF GUAYULE RUBBER.

THE mechanical extraction of guayule rubber consists, briefly, in reducing the shrub to pulp and separating the rubber by flotation. The product is then deresinated, sheeted, and dried, ready for shipment to the rubber manufacturer.

In outline, the method employed consists in submitting wet shrub repeatedly to the action of a special grinding machine, with six corrugated rolls of varying degrees of fineness. By this treatment the shrub is reduced to a suitably comminuted state for the second operation or pulping, which is effected in a pebble mill. This may be described as a metal tumbling barrel, in which a quantity of rounded flint pebbles by their motion triturate the charge to an impalpable fineness. The pebble mills for guayule work operate with about 1,500 pounds of Norway pebbles. The mill is charged about two-thirds full with water and fiber, and is revolved at about 30 turns per minute. After one or two hours the pulping is complete and the rubber thoroughly liberated from the cellular fiber. From the pebble mill the charge is dropped through a grating door into a trough, which leads the rubber and begasse into a central tank; thence it is elevated by conveyor to the skimming tanks, where water is added in



Farrel Foundry & Machine Co.

GUAYULE CRUSHER.

large volume and the rubber allowed to separate by rising to the surface; then it is floated off and conducted to large settling tanks, in which it is allowed to soak for five or six days. By that time most of the woody fiber entangled with the rubber becomes water-logged and separates by sinking out on the bottom.

The begasse, or ground fiber, and dirt, which settles in the skimming tanks, are washed out through traps and the begasse screened and further dried for use as fuel. The fairly clean rubber from the settling tanks is well washed and sheeted in ordinary rubber washers for removal of adhering fiber or dirt. The final process consists of air-drying the rubber to a definite guaranteed moisture content, 20 per cent for example, or it may be rendered essentially dry by use of vacuum drying apparatus.

MANUFACTURE OF LITHOPONE IN ITALY.

A Milanese company has been formed, says the "Weekly Bulletin of the Canadian Department of Trade and Commerce," for the manufacture of white lithopone in a factory at Brescia (Italy). This product was formerly imported from Germany, but Italy has the raw material necessary for its manufacture. It is expected that a considerable quantity will be available for export. The Italian Government has granted the firm five years' exemption from any income tax.

New Machines and Appliances.

SAND-BLASTING BASES FOR SOLID TIRES.

SAND-BLASTING the steel bases of solid tires is now an accepted practice in the manufacture of tires of the solid type, as a perfectly clean base is essential for satisfactory results. This object is obtained in an efficient manner by the sand-blasting process here described. Moreover, the result is a pitted, roughened surface to which the hard-rubber compound adheres with greater tenacity.

The various sizes of tire bases have necessitated the design of two distinct types of apparatus. For the smaller bases, up to eight inches wide by 24 inches in diameter, a cabinet is used into which the bases are placed by hand, through a front door. The bases, mounted on a spindle, revolve under sand-blast guns at a circumferential speed that insures the surfaces being uniformly and thoroughly cleaned. The various widths are taken care of by the use of four sand-blast guns which can be operated independently. On the outside of the cabinet opposite the door is the driving mechanism for revolving the spindle at the proper speed, consisting of tight-and-loose pulley and the necessary reduction gears. A quick-acting air-valve is within easy reach of the operator for turning the air supply on and off. Individual valves for each sand-blast gun serve the purpose of shutting off those guns which are not required for the narrower bases.

A larger cabinet and different procedure is required for bases up to 14 inches wide by 48 inches in diameter. The bases are mounted on an inclined runway, held in an upright position by guide rails, and delivered to the charging side of the cabinet. They are automatically introduced into the cabinet one at a time, and are revolved by rolls. Seven sand-blast guns are mounted in the top of the cabinet, adjustable to the various diameters and width by hand wheels on the outside of the cabinet. When a base is cleaned the operator trips the mechanism which discharges the cleaned base onto a second inclined runway, and automatically takes on another base to be cleaned. The charging, revolving, and discharging operations are entirely automatic except for the timing of the clean, which necessarily is in proportion to the diameter of the bases, and therefore must be determined by the operator.

The sand-blast guns used on both cabinets are of standard design as used in connection with other types of similar apparatus. They are of the induction type, which means that the sand is elevated from a hopper beneath the cabinet to the gun by syphoning action of the air jet. Each gun consumes approximately 67 cubic feet of free air per minute at a most advantageous pressure of 60 pounds per square inch. The abrasive used for sand-blasting falls into a hopper at the bottom of the cabinet. This hopper has four and seven sand-feeding devices corresponding to the number of guns used on the two cabinets. These sand-feeds supply sand to the guns only when the air is turned on, that is, when the gun is in operation. The connection between the sand-feeds and the guns consists of heavy, wire-inserted rubber hose.

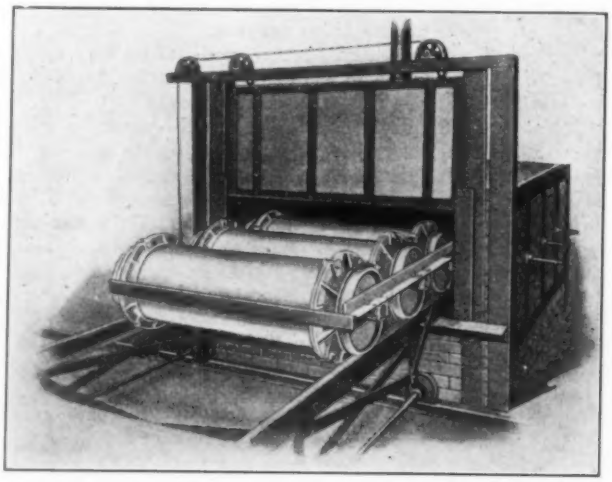
As it is essential that an adequate exhaust and dust-collecting system be used, therefore dust-arresters and exhaust-fans are connected to the sand-blast cabinets by galvanized iron piping of sufficient size, producing the desired results. (The W. W. Sly Manufacturing Co., Cleveland, Ohio.)

SHERARDIZING POLES AND MOLD CAVITIES.

From the beginning the surfaces of steel poles or mandrels used in the manufacture of open heat articles, such as hose and inner tubes, become corroded and pitted, especially at the ends, thereby limiting their usefulness. This corrosion is due to the action of steam and sulphur gases on the exposed surfaces of the mandrels during the process of manufacture. Sherardizing, however, eliminates this difficulty and consequently has become a standard practice with regard to inner tubes and mandrels. There is no reason why the process of sherardizing should not be applied with success to hose poles in general. This process will also be found advantageous as a permanent lustrous coating for mold cavities in the manufacture of hot-water bottles, bulbs, balls, toys, and similar molded goods.

Sherardizing or dry galvanizing is a process of metallic sublimation applied by first grinding and polishing steel articles which are then packed in a container, with zinc dust, and subjected to heat. As the result, a deposit of zinc is formed that not only coats the steel surfaces but penetrates them and presents a hard, smooth surface of a silvery color that resists rust and will not peel. The deposit does not alter the dimensions of the mold since the coating is only .002 of an inch in thickness.

It is not necessary that all articles should be ground and polished as this process is applied only to mandrels which must



DRUMS CONTAINING TUBE MANDRELS BEING ROLLED INTO A SHERARDIZING FURNACE.

be relieved of all holes to insure a perfectly smooth surface. The standard method as applied to preparing material for nickel plating will usually cover all items.

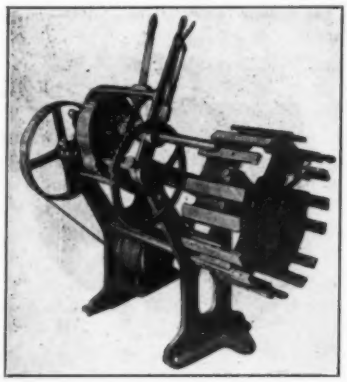
It is recommended that a standard splicing connection be adopted on hose pole mandrels and all mechanical fittings intended to be sherardized, which would overcome any corrosions in the joints. Furthermore, to extend the life of inner tube mandrels or poles, plugs should be inserted in one end with a hole one inch square for turning in the lathe in order to overcome the ragged edges and the cutting of the mandrel so common when using a grip chuck.

Sherardizing of mandrels is essential at the present time, due to the need for saving steel, as a sherardized mandrel will last almost indefinitely and when worn it can be retreated and restored at a minimum cost. With this fact in view manufacturers have adopted a mandrel of no lighter than No. 13 gage on the very smallest sizes, which will allow regrinding and refinishing several times and still retain enough stock to answer general requirements. (The New Haven Sherardizing Co., New Haven, Connecticut.)

"Rubber Machinery," by Henry C. Pearson, is filled with valuable information for rubber manufacturers. Price, $6.

THE HIBBS FABRIC-STRIPPING MACHINE.

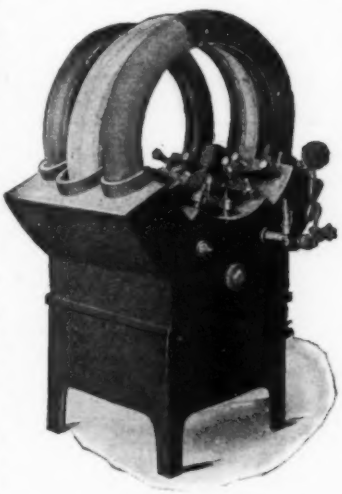
Herewith is illustrated a machine which provides an inexpensive method of reclaiming tire fabric. The cost of stripping is low, as one man can strip the fabric from 1,500 to 2,000 pounds of tires per day with this machine, since it removes the fabric without cutting off the beads of the old tire so that only the toe of the bead need be removed. Any number of plies of fabric may be stripped from the tire at one time.



The machine is instantly adjustable from the largest to the smallest tire by turning a crank. The motor base can be adjusted so that the slack in the driving belt may be taken up without cutting it. The clutch is of extra large single disk type and the driving gears are encased in heavy gear guards. The fabric shaft has a 12-inch forward and backward movement. The machine usually has a one-horse-power, two-phase motor, but can be furnished with a single-phase motor. The shipping weight is about 700 pounds. (The C. D. Hibbs Rubber Co., Fort Worth, Texas.)

A TIRE REBUILDING AND RETREADING MACHINE.

It is a known fact that many carcasses outwear the tread, and if retreated will continue to be serviceable for many miles. Moreover, tire users are urged to conserve their tires, and government regulations having eliminated many sizes, therefore the demand for rebuilt tires is increasing.



The machine here pictured is of the enbloc type, having three one-third circle cavities with a cross section of 3½, 4¼ and 5¼ inches, respectively, and will handle any size of tire, from 28 by 3 to 38 by 5½ inches. The cavities are deep enough to cure the tire over the beads when desired. The ends of the cavities are provided with semi-curing flanges, to guard against any breaks in the cure. The boiler is self-contained, using gas or kerosene as fuel to generate steam.

The raised centers of the side of the cavities are so constructed that with the use of air bags and standard bead molds a section can be cured in the same manner as in regular sectional molds in rib, or with a pad in either plain or non-skid design.

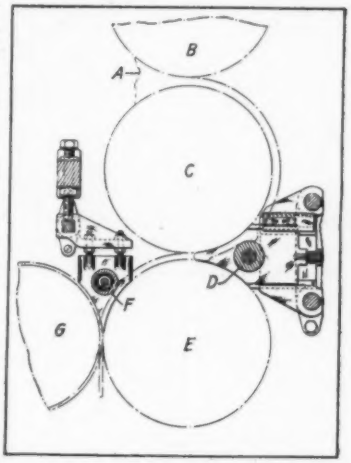
In retreading, the time required for cure in each case is that recommended for the repair material used. The pressure on the tread is secured by pressure against the sand bag placed in the tire.

The machine is adapted to build rib-style, non-skid or plain treads; also tread bands may be cured on and half-soles and double treads applied quickly and efficiently. (Zwebell Brothers Co., Milwaukee, Wisconsin.)

MACHINERY PATENTS.

CALENDER FOR TIRE TREAD STOCK.

THIS machine is a modified four-roll calender designed for the purpose of producing tire tread stock. The calender is provided with pressure rollers that act on the stock before passing between the rolls, and forming a slight bank in front of each roller, thus eliminating air bubbles, equalizing thickness, increasing density and reducing surface imperfections in the calendered rubber strip.



The batch of rubber *A* is fed between rolls *B* and *C* and as the strip of rubber passes under the first banking roller *D*, pressure is exerted on the stock, forming a slight bank on the surface of the strip. After passing between rolls *C* and *E*, the strip is subjected to the action of the second pressure roller *F* that forms a slight bank on the surface of the stock which now passes between rolls *E* and *G* where it receives its final form and finish. (William Kearns, assignor to Morgan & Wright, both of Detroit, Michigan. United States patent No. 1,277,729.)

OTHER MACHINERY PATENTS.

THE UNITED STATES.

NO. 1,276,041. Expansible mandrel. J. L. G. Dykes, Chicago, Ill.

1,276,127. Thread-controlling mechanism for machines for sewing balloon fabric. D. S. Seymour, Oak Park, assignor to Union Special Machine Co., Chicago—both in Illinois.

1,276,436. Fabric-spreader for tire-making machines. W. C. Stevens, assignor to Firestone Tire & Rubber Co.—both of Akron, O.

1,276,592. Tire mold. J. A. Swinehart, Akron, O.

1,276,654. Expanding metal core. W. A. Hirsch, Avalon, Pa.

1,276,942. Machine for molding tire covers on rotatable core. F. H. Mercer and H. F. H. Blease—both of Melksham, England.

1,277,179. Apparatus and method for making hollow rubber articles. R. Beynon, Chicago, Ill., assignor to The Mechanical Rubber Co., New York City.

1,277,265. Repair vulcanizer. J. F. Schneider, St. Louis, Mo.

1,277,716. Lifting tongs for tire cores. O. Grosvenor, New York City, assignor to Morgan & Wright, Detroit, Mich.

1,278,099. Sewing and cementing machine. F. A. Brackett, Manchester, N. H., assignor to W. H. McElwain Co., Boston, Mass.

1,278,133. Valve. J. R. Gammeter, Akron, O., assignor to The B. F. Goodrich Co., New York City.

1,278,266. Tire-wrapping machine. P. E. Welton, Cuyahoga Falls, O., assignor to Birmingham Iron Foundry, Derby, Conn.

1,278,637. Traveling buck for tire-building machines. L. B. Griffin, Muskegon, Mich.

THE DOMINION OF CANADA.

184,874. Mold-alining device for vulcanizing press. The Canadian Consolidated Rubber Co., Limited, Montreal, Que., Canada, assignee of H. J. Hoyt, Detroit, Mich., U. S. A.

THE FRENCH REPUBLIC.

487,160. Improvements in machines for making tires. The Goodyear Tire & Rubber Co., Akron, O., U. S. A.

487,225. Apparatus and process for manufacturing an improved pneumatic tire. H. B. Wallace.

487,510. Electrical apparatus for vulcanizing rubber. P. Michalet.

PROCESS PATENTS.

THE UNITED STATES.

NO. 1,276,411. Process for manufacturing rubber tires. R. B. Price, assignor to Rubber Regenerating Co.—both of New York City. (Original application divided.)

1,277,711. Process of making a flat, endless belt. J. R. Gammeter, Akron, O., assignor to The B. F. Goodrich Co., New York City.

THE DOMINION OF CANADA.

185,041. Method of making hollow rubber toys. J. E. Abler, Guelph, Ont., Canada.

NEW ZEALAND.

40,300. Process for repairing pneumatic-tire covers. H. F. Williams, Belfast street, Christchurch.

New Goods and Specialties.

A PATENTED HAIR-CURLER.

A RECENTLY patented hair-curler which is very simple in construction, is shown in the accompanying illustration. It is formed of a loop of wire, aluminum being used in the one seen, with the ends coming together beneath the band around the smaller end. The wire is flexible enough to permit the insertion of a rubber ring between the ends, and this ring is positioned within the small loop and held in place by the band. The rubber ring is stretched lengthwise, after the hair is curled around the wire, and is slipped into the inwardly projecting crotch, where it remains securely holding the hair. This device is patented in Canada, although the patentee lives in the States. (M. J. Peppard, Minneapolis, Minnesota.

THE "ILANASILK" LIFE-SAVING GARMENT.

The great demand of the Government for life-saving garments with which to equip the various units going overseas has stimulated the production of such suits and various concerns are putting them out. Of course, they are all different, yet alike in that they consist outwardly of a rubber garment of more or less similar character. These rubber outside suits are made by the American Rubber Co., Boston, Massachusetts, and by the Hodgman Rubber Co., Tuckahoe, New York, being supplied by them to the different independent companies holding the patents on the several types.

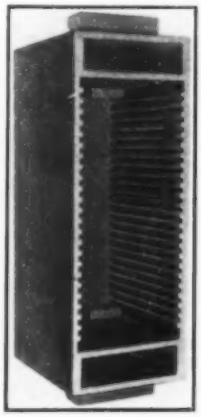
The "Ilanasilk" suit is composed first of all of an inner jacket padded with kapok which is sufficiently buoyant to maintain a person in the water without sinking. In order to protect the wearer from exposure and wet, the rubber suit is added. The feet of this are weighted to assist further in holding the person in an upright position, and there is an elastic fabric opening at the neck, through which the head is put. The large opening in the front, by which the suit is put on, is closed by twisting it together and folding it back on itself for insertion in a strap extending from the shoulder. The air is forced out of the suit by pulling it slightly away from the neck and squatting. A hood with goggles is attached to protect against rough water and winds. (The Ilanasilk Lifesaving Garment Co., Inc., 27-35 New Jersey Railroad avenue, Newark, New Jersey.

A NEW SUPERTIRE.

A new cord supertire is illustrated here, each cord of which is separated from the others and insulated by rubber. It is of multiple-ply construction and has a thick side-wall above the bead. The tread is jet-black and the side-wall, pearl-gray. The new tire is made in five sizes at the present time. (The Amazon Rubber Co., Akron, Ohio.)

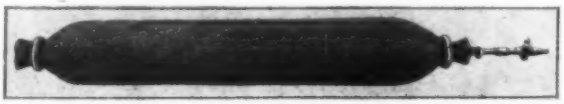
HARD RUBBER CHEMICAL TANK.

A complicated piece of molded hard rubber is shown in the picture below. It is approximately 30 by 10 by 10 inches over all and is used as a chemical tank for an electrolytic process. Earthen-ware boxes were previously used but, while considerably less expensive in initial cost, showed a much greater loss through breakage. Hard rubber was then chosen on account of its ability to withstand the action of acids, its dielectric and mechanical strength, and because hard rubber can be molded more accurately than most other substances. (The B. F. Goodrich Rubber Co., Akron, Ohio.)



THE "STELASTIC" GAS-CONTAINER.

This container for compressed coal-gas used as motor-car fuel is made under the Torkington patents, from hard drawn steel wire with tensile strength of 120 tons per square inch, tinned to prevent rust, in correctly pitched, interlaced spirals. The weaving is as strong laterally as longitudinally, to withstand internal pressures up to 2,000 pounds per square inch. Each end of the fabric is "gathered" together



and over it slipped a forged steel ring electrically welded. Into the gatherings beyond the ring are driven six conical lead wedges, each about three inches long. Inside of the container is a rubber bag made of the best quality of thin rubber. It has a gas pipe at one end and is reinforced with plies of cotton fabric around the pipe seating. The weight of a cylinder four feet long by eight inches internal diameter is 27 pounds complete, and the capacity is 1.39 cubic feet. At 20 atmospheres it contains 27.8 cubic feet of free gas; at 40 atmospheres, 55.6 cubic feet, and at 70 atmospheres (1,000 pounds), 97.3 cubic feet. (Stelastic Tires, Limited, 76 York street, Westminster, London, England.)

ANOTHER CUSHION WHEEL.

Various types of wheels are constantly being devised to mitigate the evils of vibration, and one form of these is the resilient wheel. This one has a rubber cushion (see arrow) inserted between the wood felloe and the solid tire, otherwise being of conventional design and construction. The wheel with the rubber cushion applied is pressed into the outer channel band, the transverse bolts screwed up, and the pressed-on tire put into place. All bolts have countersunk heads on the outside of the wheel, insuring smoothness. (Morand Bros. and Martin Cushion Wheel Co., 800-902 South May street, Chicago, Illinois.

A NIPPLE FOR SPLIT-PALATE NURSING.

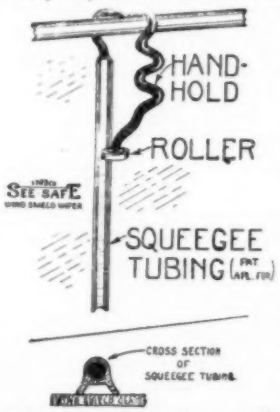
The difficulties with which doctors and nurses and parents have to contend in nursing babies who are unfortunate enough to have split palates have been lessened by the invention of a special nipple, shown in the accompanying illustration. This device has as its base a nipple much like the ordinary kind, over which is built a soft-rubber shield, known as a "comparing shield." The whole fits over an ordinary nursing bottle. (F. A. Hardy & Co., 10 Wabash avenue, Chicago, Illinois.)

FIRESTONE "HOLDFAST" PATCH STOCK.

An improvement of the "Holdfast" patch which has been on the market for some time is now being put out. The stock is prepared in sheet form so that it may be cut as small as desired to repair tubes of any size. Previously the patches came already cut in special sizes, which made it necessary for dealers to carry several of these. (Firestone Tire & Rubber Co., Akron, Ohio.)

THE "STADCO SEE-SAFE" WINDSHIELD WIPER.

Anybody who allows his windshield to become misty or clouded with rain and snow must be far from civilization with its multiplicity of windshield cleaners. Every few weeks a new model appears, and practically all of them employ rubber on the squilgee principle for cleaning the glass of the shield. The one pictured here is adapted for attachment on the top edge of the wind-shield, but pivots in such a way as to make it possible to operate it straight across the shield or in a semi-circle. The different parts of this device, on which the trade-mark is copyrighted, and on some features of which a patent has been applied for, are plainly indicated in the drawing. The attachment is not expensive and comes packed by the dozen in a box for counter display. (Stadeker Metal Specialty Co., 358 West Madison street, Chicago, Ill.)

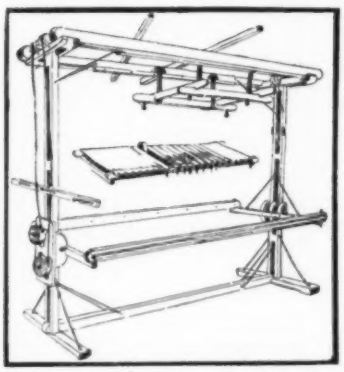


TITAN WORK SHOE.

A new work-shoe, produced at a medium price, while selling for less money than the ordinary leather shoe, has some advantages over the latter which the wage-earner should appreciate. The shoe has an upper of extra heavy duck, reddish-brown in color. The soles and heels are of fiber and rubber of superior wearing quality. The shoe is blucher cut, with one-piece bellows tongue, has a broad high toe with tip, and is an attractive, rugged, easy shoe which should commend itself to wearers. (Apsley Rubber Co., Hudson, Massachusetts.)

RUBBER USED WITH THE "BALKAN" BED.

In THE INDIA RUBBER WORLD for March 1, 1918, was a short account of the work of the Surgical Requisites Association of England in the present war and a letter from Dr. Philip Schidrowitz, the chemist and writer, telling about some of the uses found for rubber in modern surgery and nursing. Some of these inventions had been made by members of the association, and these included the "double Balkan" hospital bed, of which a sketch has been obtained and is now presented herewith. It is known as the S. R. A. "Williams" double Balkan, and is the invention of two members of the association. A clever arrangement of pulleys and a traveling framework make it possible to raise and lower a patient at will, or his head or feet independently of each other. What is called a girth mattress is used with this bed, made in sections which may be taken apart as required for treatment without moving the patient. Rubber sheeting, tubing for feeding and irrigation, feeding bottles, etc., are used in connection with this bed. (The Surgical Requisites Association, 17 Mulberry Walk, Church St., Chelsea, S. W. 3, London.)



HEAT-TIMING CLOCK FOR MOLD WORK.

The necessity of accurate timing of heats in mold work suggests that the device here illustrated may be of interest. In laboratory work it could be utilized in carrying out chemical tests according to standardized methods.

It closely resembles an alarm-clock in appearance, but in reality it is an interval-timer that can be set for any interval between fifteen seconds and two hours. At the end of the period for which it has been set, the alarm rings and the clock stops. (Victor Electric Corp., 131 East Twenty-third street, New York City.)

RUBBER AND FIBER WELT.

In the making of hand or machine welt shoes, a narrow strip of leather is commonly used for the welt. Some years ago J. N. Moulton invented a welt of rubber, for which he claims that a waterproof seam would result from its use. Recently he has designed a combination welt, which consists of a strip of rubber, skived at one edge, and reinforced for one-half its width with a thickness of heavy duck. This fabric holds the stitches which might tear through a strip not thus reinforced, and the free edge, being elastic, enables the welt to lie flat when stretched around the toe, no matter how small the diameter. (Plymouth Rubber Co., Canton, Massachusetts.)

SPUN GLASS INSTEAD OF RUBBER RINGS.

According to "Die Zeit," a firm in Aussig, Austria, has succeeded in producing a kind of spun glass which answers the same purpose of cork and rubber rings in closing bottles. The invention is said to be very cheap and likely to be of importance.

The Editor's Book Table.

"THE FINANCIER RUBBER SHARE HANDBOOK." FIFTEENTH Edition. June, 1918. The Financier and Bullionist, Limited, London, England. (Cloth, octavo, 880 pages. Price, five shillings net.)

THIS useful annual contains information on stock companies owning rubber plantations no matter where located. It gives their authorized share capital, the amount issued, acreage, etc., together with list of directors. The data are presented in a really serviceable manner. The names, addresses and telephone numbers of the secretaries and agents in London are included.

E. L. Killick, the rubber expert of the "Financier," while admitting in the preface that producers are faced this year with a difficult situation, considers the post-war prospects of the industry excellent owing to the impetus given to motor traction by the war, and still more because enemy and neutral countries have now long been denuded of supplies of crude rubber.

"RUBBER PRODUCING COMPANIES—1918." COMPILED BY THE Mincing Lane Tea and Rubber Share Brokers' Association, Limited. "The Financial Times," London, England. (Board covers, octavo, 621 pages. Price, five shillings.)

The sixth edition of this practical handbook has just been issued. It gives the capital authorized and issued, the acreage and tenure, the purchase price, the quantity of rubber tapped, the accounts, etc., of nearly 600 rubber producing stock companies all over the world. It also includes a directory of all the directors, secretaries, and London agents, with the telephone numbers and cable addresses.

In the preface, Mr. Kendall, the editor, urges a great restriction of output but sees a serious obstacle in the fact that such a large number of plantations are native-owned. It is pointed out that one of three different systems could be followed. One might allow only members of the Rubber Growers' Association who restrict their output to export to Great Britain, the European Continent, or the United States of America. A Government order for restriction might be issued, including native-owned estates. The product might be taken over at a price based on the three pre-war years.

"MILITARY AEROPLANES." BY GROVER C. LOENING, B. SC., A. M., C. E. 1918 Revised Edition published by the author, Long Island City, New York. (Cloth, large octavo, 202 pages, illustrated.)

A valuable book by a recognized authority for the student of aviation or airplane design, and a textbook in extensive use at American, British and Canadian aviation schools. The illustrations and diagrams include details of rubber cord shock absorbers.

"THE MOTOR TRUCK AS AN AID TO BUSINESS PROFITS." 1918. By S. V. Norton, manager truck tire sales department, The B. F. Goodrich Rubber Co., Akron, Ohio. A. W. Shaw Co., Chicago, New York, London. (Cloth, 6 by 9½, 509 pages. Price, $7.50.)

This volume presents a study in five parts, of the motor truck: (1) fitting the motor truck into your business; (2) making your motor truck do more and better work; (3) maintenance that lowers the cost of upkeep (Under this heading are two chapters on "How Tires Can Raise or Lower the Cost of Upkeep," and "Selecting the Right Tires."); (4) building new business with your motor truck; (5) present tasks and future problems.

Briefly outlining the evolution of trade carriers, the author shows that the horse is being supplanted as a motor because he is only two per cent efficient and his cost in the past ten years has increased 143 per cent. The scope of the book has already been indicated. It merits careful study by both prospective and actual truck users because it discusses in a practical, non-technical way every phase of truck cost, maintenance, operation, etc., and the principles of successful goods transportation by motor. The book contains 329 reproductions of photographs illustrating the motor truck in operation under many conditions, which effectively add to the arguments in the text. There are also included several charts and forms covering inspection, costs of operation, etc.

"ANNUAL CHEMICAL DIRECTORY OF THE UNITED STATES." Second Edition, 1918. Williams and Wilkins Co., Baltimore, Maryland. (Cloth, 6 by 9, 534 pages. Price $5 net, postpaid.)

This is an extremely valuable reference work for purchasers of chemicals and supplies for manufacturing and laboratory use. The full range of chemical products is covered, including acids, colors, dyes, explosives, extracts, oils and many other products essential for laboratory, technical and industrial purposes. These are listed alphabetically by products and by manufacturers and dealers. Chemical and chemical engineering apparatus, machinery, etc., are similarly listed in both ways. Analytical and consulting chemists and chemical engineers are cataloged both alphabetically and geographically. Laboratories are listed grouped as industrial, institutional, and Federal, State or municipal.

The lists of societies and associations and technical and scientific journals, United States and foreign, with subscription prices, form a new and valuable feature.

DIRECTORY OF THE SPORTING GOODS TRADE. ELEVENTH Edition. Compiled by J. G. Taylor Spink. Charles C. Spink & Son, St. Louis, Missouri. (Paper covers, 16 mo, 256 pages.)

This convenient book gives in compact form a large amount of information as to first-hand makers or suppliers of practically everything which can be denominated under the head of sporting goods, and naturally includes the names of makers of specialties in rubber coming in that category, from boots to bait, from golf balls to push balls. Undoubtedly the book is one which will be referred to frequently by dealers in sporting goods, and similar lines.

NEW TRADE PUBLICATIONS.

THE YARNALL-WARING CO., PHILADELPHIA, PENNSYLVANIA, has just issued a new binder to hold the various catalog sections it publishes from time to time, the use of which enables its customers to have a complete explanatory catalog of its Yarway hydraulic valves, meters, automatic boiler skimmers, and other engineering devices for power plants, in which this company specializes.

* * *

THE NEW JERSEY ZINC CO., 55 WALL STREET, NEW YORK CITY, has published for distribution to firms interested in zinc four booklets of its "Handy Reference Library of Zinc Products." The titles are "Pigments," "Metals," "Rolled Zinc," and "Zinc Dust," and each describes briefly certain of the company's compounding ingredients, and contains information of interest to users.

* * *

THE 1918 YEAR-BOOK OF THE MERCHANTS' ASSOCIATION of New York is being distributed among the members of the association. Its 288 pages cover for the year ended May 1, 1918, the many varied and important activities of this organization which has for its object "to foster the trade and welfare of New York." Much of the space is devoted to the cooperation accorded the Federal authorities in helping to solve the many new problems arising from the war. The book contains complete alphabetical and classified lists of members. In the latter, Division XLIII comprises rubber, rubber goods and kindred lines. It includes 28 firms representing most departments of the rubber industry. The textile, chemical, electrical and other allied trades are also well represented.

The Obituary Record.

OWNED A CHAIN OF RUBBER STORES.

ISAAC CROCKER, founder of the Crocker System of rubber stores in New England, died at his summer home, Glendale, New Hampshire, September 28, 1918, aged 61 years. The funeral services were held at his home in Providence, Rhode Island.

Mr. Crocker was born in Biddeford, Maine, and his boyhood days were spent in Albany, Maine, where he attended the public schools, completing his education at the Bethel (Maine) Academy. After his graduation he taught school for a short time; then going to Lowell, Massachusetts, he entered the employ of the Lowell Rubber Co., managed by Granville Hayward, whose brother, J. Francis Hayward, owned several rubber stores. Advancing rapidly from errand boy to salesman, and traveling representative, he was given the management of the Lawrence, Massachusetts, store in 1889, and on the death of Mr. Hayward in 1896 he went to Providence, Rhode Island, to take charge of the Hope Rubber Co. store. In 1903 he purchased the business, which comprised eight rubber stores. Since then he has added to the chain and at his death he owned stores in Brockton, Salem, Haverhill, Worcester, Lowell, Lawrence and Fitchburg, in Massachusetts; Manchester and Nashua, in New Hampshire; Providence and Newport, in Rhode Island.

Mr. Crocker was fond of travel. He was an ardent hunter and fisherman, with a fad for collecting arms and weapons. He greatly enjoyed his summer residence at Glendale, in the lake region of New Hampshire, and was, at his death, one of the largest landed proprietors of that summer colony. He made his home in Providence, Rhode Island, but spent much of his time in visiting his various stores.

Mr. Crocker was a generous employer and on various occasions was wont to bring all his employes to some central city to celebrate anniversaries, or the opening of new stores, thus fostering a spirit of couradeship which prevailed the entire system. He was a member of the Odd Fellows, Knights of Pythias, and Knights of Malta.

He is survived by a widow, and a son and daughter by a former marriage. The son, George I. Crocker, was associated with his father in business.

TWENTY YEARS IN RUBBER SCRAP AND MACHINERY BUSINESS.

Daniel L. Barry, a member of the firm of M. Norton & Co., dealers in rubber scrap and second-hand machinery, Charlestown, Massachusetts, who passed away on October 9, 1918, was born in Boston, Massachusetts, fifty years ago. At the age of thirty he engaged in the scrap rubber and second-hand rubber-mill machinery business with his brother-in-law, under the firm name of M. Norton & Co. The company, under his supervision, dismantled a large number of rubber mills throughout the country.

Mr. Barry was a man of pleasing disposition and upright character, highly respected by his business associates and friends. He is survived by his widow, two daughters, and two sons.

A PROMINENT DEALER IN RUBBER CHEMICALS.

Milton Birch, vice-president and treasurer of the Westmoreland Chemical and Color Co. since December, 1910, died on October 16, after a brief illness. He was born April 25, 1858.

The Westmoreland Chemical and Color Co. succeeded the S. P. Wetherill Company, which concern was the successor of S. P. and G. D. Wetherill, Jr., who started in business in February, 1872. Mr. Birch entered their employ in 1878, and on March 31, 1883, was instrumental in organizing the limited stock company which succeeded the original partnership. Shortly after entering the employ of the old concern, Mr. Birch was one of the young men delegated to start the Lehigh Zinc and Iron Co., afterwards the Lehigh Zinc Co., and now part of the present New Jersey Zinc Co.

Mr. Birch had been a member of the Union League Club of Philadelphia since 1886 and about 20 years ago succeeded to his brother's right in the Loyal Legion. He leaves a widow and two children.

GENERAL SALES MANAGER OF THERMOID RUBBER CO.

Harold F. Blanchard, general sales manager of the Thermoid Rubber Co., and the son of J. F. Blanchard of New York City, died at his home in Trenton, New Jersey, on October 19, 1918, of pneumonia which developed after an attack of influenza. He was ill but a few days. His widow, who was the daughter of W. J. B. Stokes, president of the Thermoid company, subsequently passed away on October 27. The couple leave two young sons.

HAROLD F. BLANCHARD.

Mr. Blanchard was 30 years of age. He was born in Rochester, New York, and was a graduate engineer of Lehigh University. A few years ago he was appointed city manager of the Thermoid Rubber Co. in Philadelphia, Pennsylvania, and about two and a half years ago was made general sales manager of the company in Trenton. The deceased was a member of the Trenton Club and the Trenton Country Club.

DESIGNER OF MAGNET AND MOTOR-OPERATED BRAKES.

Frank I. Parker, of the Cutler-Hammer Manufacturing Co., Milwaukee, Wisconsin, died at his home in Milwaukee, October 18, 1918, at the age of 36 years. His death was due to pneumonia contracted after influenza. He was graduated from the University of Wisconsin in June, 1906, and in July became engineer in charge of production in the magnet and clutch department of the Cutler-Hammer company. His early work was with lifting magnets made by this company, he being responsible for many of the exclusive features of these magnets as well as designing several of its magnet and motor-operated brakes. Since 1911 Mr. Parker has had charge of sales service work on clutch department products. He was made an associate member of the American Institute of Electrical Engineers in 1910 and in 1913 became a member. He is survived by his widow and one child.

KNOWN THE COUNTRY OVER.

Benjamin F. Elson, who a few years ago ended a term of 25 years' service with the Boston Belting Co., died at his home in Brookline, Massachusetts, on the nineteenth day of October, 1918, at the age of sixty-one.

He was born in Boston, Massachusetts, the son of Julius and Rosalie Elson, and was educated in the public schools of that city. His first business experience was in the bookkeeping department of a wholesale woolen house, but he entered a similar department of the Boston Belting Co. about 35 years ago, becoming a salesman later. Naturally ambitious, he left the company to form a partnership with Warren Salisbury, of Chicago, to deal in rubber goods in that city. The firm of Salisbury & Elson lasted but a year or two, and Mr. Elson returned to the Boston Belting Co. as its representative in New York City, which position he held until 1906, when he came to the home office to assume the duties of sales manager. On the death of J. B. Forsyth, in 1909, Mr. Elson was appointed assistant general manager, which position he retained until two or three years ago, when a paralytic shock incapacitated him from further active business.

BENJAMIN F. ELSON.

Mr. Elson was well known in the rubber trade throughout the country. He was an able salesman, ambitious and aggressive, and an earnest worker in the interests of the company. He was a member of the Brae-Burn Country Club, the Boston City Club, the Boston Athletic Association, and the New York Republican Club. He is survived by a widow and two brothers.

FORMER DIRECTOR OF HOOD RUBBER CO.

Eugene Jerome Fabens, prominent in banking circles in Boston, and at one time a director of the Hood Rubber Co., Watertown, Massachusetts, died at Salem in that state, on September 26, 1918, from pneumonia. He was born in Salem, September 15, 1883, and early became connected with the banking interests. At the age of 23 he was elected president of the Naumkeag Trust Co., and was the youngest bank president in New England. At the time of his death he was a member of the banking firm of Blake Bros. & Co., devoting a part of each week to managing the New York offices of that concern. He occupied the position of trustee or director in several manufacturing, banking, and insurance companies. He leaves a widow and three children.

SECRETARY OF THE CRESCENT INSULATED WIRE & CABLE CO., INC.

Edgar T. Phillips, secretary of The Crescent Insulated Wire & Cable Co., Inc., Trenton, New Jersey, recently died at his home in the same city.

Mr. Phillips was born near Lambertville, Hunterdon County, New Jersey, on March 30, 1877. He attended the local public schools and also the Lambertville high school, later attending the Stewart Business College of Trenton, completing the commercial course December 20, 1894, and the stenographic course on June 14, 1895. He shortly afterward accepted his first position with the Crescent company and was elected secretary in 1902, which position he had continued to hold.

SOLD FOOTWEAR IN MAINE.

Charles B. Reynolds, salesman for the Converse Rubber Shoe Co. in Maine, died at Bangor, that state, the middle of October, aged 28 years. He formerly occupied a similar position with the Banigan Rubber Co., of Boston, joining the Converse force when the Banigan company's business and that of other branches were consolidated with the United States Rubber Co. Mr. Reynolds is survived by his widow and infant daughter.

A CAPTAIN OF INDUSTRY.

Charles Gustavus Roebling died of Bright's disease, at the age of 69, at his home in Trenton, New Jersey, on October 5, 1918.

He was president of John A. Roebling's Sons Co., of Roebling and Trenton, New Jersey, and of the New Jersey Wire Cloth Co., Trenton, as well as vice-president of John A. Roebling's Sons Co., New York City, besides being a director of the Mercer Automobile Co.

He was the third son of the late John A. and Johanna (Herting) Roebling, and was born in Trenton on December 9, 1849. After graduating from Rensselaer Polytechnic Institute in 1871, he became identified with his father's firm, which was already becoming famous through the construction of the Brooklyn bridge. Charles G. Roebling was the engineering genius of the Roebling company, of which his brother Ferdinand W. Roebling was the fiscal genius. At the death of their father the Roebling business was worth $150,000 and gave employment to 150 men, today the book value of the company's property is $50,000,000, and 8,000 men are employed. It was the genius of Charles G. Roebling that gave his company its leading position in the world; it was he who designed all the intricate, special and costly machinery needed to pass from one to another of the wonderful developments in the steel and insulated wire business.

CHARLES G. ROEBLING.

Notable monuments to the ability of the deceased are the Oil City suspension bridge at Oil City, Pennsylvania, the cables of the Williamsburg suspension bridge in New York, and the erection of "Cleopatra's Needle" in Central park, New York. One of his greatest accomplishments is the town of Roebling, New Jersey, his own idea. Up to the present the town has cost $15,000,000 and the end is not yet.

Charles G. Roebling was an accomplished pianist and violinist, a great lover of automobiling, of books and of paintings. He was the owner of the greatest private collection of orchids in the world and made an amazing success of hybridizing. His health was much impaired by the loss of his only son in the *Titanic* disaster, but he was stricken only last August with the disease which carried him off. It was on the 27th of that month that he took to his bed, from which he seldom arose afterward. He was a member of the Iron and Steel Institute of Mining Engineers, the Engineers' Club of New York, and the Lotus Club of Trenton.

He is survived by two brothers, Colonel Washington A. Roebling, of Trenton, and Edmund Roebling, of New York, and one sister, Mrs. Josephine Jarvis of New York.

SALES MANAGER IN NEW YORK.

Robert N. Pierson, for eight years a highly valued member of the sales force of the Voorhees Rubber Manufacturing Co., Jersey City, New Jersey, and for the past six years sales manager of their New York City branch, died from pneumonia at his home, 960 East 14th street, Brooklyn, New York, on Sunday, October 20, 1918, at the age of 30.

ROBT. N. PIERSON.

CASHIER OF THE HOOD RUBBER CO.

Arthur Mack, cashier of the Hood Rubber Co., Watertown, Massachusetts, died October 3, 1918, from pneumonia, following an attack of influenza. He entered the employ of the company in July, 1912, as a clerk, and was elected cashier four years later. He is survived by a widow and a three-months-old son.

THE WILL OF FRANK CAZENOVE JONES FILED FOR PROBATE.

The estate of Frank Cazenove Jones is valued at $20,000 in personal property. Anna M. Jones, the widow, receives $25,000 from life insurance, besides furniture, bric-à-brac, and household effects. Each of the two daughters receives $12,500 from life insurance. To the son are left thirty shares of stock in the Okonite Rubber Co. and twenty shares in the Manhattan Rubber Manufacturing Co. The residuary estate is divided among the members of the family.

INTERESTING LETTERS FROM OUR READERS.

CONGRATULATIONS FROM A RUBBER MANUFACTURER.

DEAR SIR—Having just carefully read and then re-read your leading editorial in this month's (October) WORLD under the title, "American Rubber Trade Attacked," I desire heartily to congratulate you on the same. It is courageous, yet polite and diplomatic. It states the facts. It touches the spot. It places the blame that such a charge should be made on the source from whence it no doubt came. Again congratulations.

Sincerely,

JESSE E. LA DOW.

Mansfield, Ohio.

CRUDE RUBBER MAN APPROVES EDITORIAL.

TO THE EDITOR OF THE INDIA RUBBER WORLD:

DEAR SIR:—I have read with much interest your able and truthful contradiction, under the title, "American Rubber Trade Attacked," of the misleading statements contained in some of the recent London publications.

As one who has been intimately associated with the crube rubber business since long before plantation-grown rubber was an established fact, and one who has made a study of planting from a merchant's viewpoint, I wish to congratulate you upon your concise presentation of the *real* facts.

When the British Government was seeking a plan through which it could supply British-controlled rubber to America, and be sure that it did not reach the enemy, one of its own subjects made the suggestion which was finally adopted. He knew the merchants and manufacturers of America and advised that they be put *on honor*.

The plan was put into force and met the hearty cooperation of the whole trade, and it was religiously lived up to by both the merchants and manufacturers, although it entailed large expense and put them to great inconvenience.

Your able reply to the fabrications of London writers who have taken their text from disgruntled speculators, should prove to the Britishers the *true* position of the American rubber merchant and manufacturer.

The future of prices, and the future of the growing industry is in the hands of the owners, a large percentage of whom are Londoners, and America is powerless, but she is willing to help out to the best of her full ability and resources; she does not want to see the growers do an unprofitable business; she recognizes their foresight in the beginning, and their industry in bringing the industry to its present state of perfection; she is willing and anxious to support it, and casts no covetous eyes towards the profits that are due to the people who made it a success.

Sincerely,

ARTHUR W. STEDMAN.

New York City.

SIZES OF SOLDIERS' ARCTICS.

TO THE EDITOR OF THE INDIA RUBBER WORLD:

DEAR SIR:—Recently in an interesting article in one of our daily papers, the statement was made that the French cobblers, who had contracted to repair our soldiers' shoes, had refused to keep their agreement. They claimed that the American fighter's foot gear was so much larger than that of the average Frenchman, that it was impossible to do the work at the price which they, in ignorance of that fact, had agreed upon. So they applied for an increase and it was granted.

No one is really proud of large pedal extremities and most of us generally feel the other way about it. But Uncle Sam must admit the fact this time. A trip through a modern rubber shoe factory will convince even the most skeptical; as we see the four-buckle arctic for which Uncle Sam has contracted to keep his boys' feet both warm and dry, we must acknowledge the fact that the larger sizes predominate.

As we follow the shoe from the laster's bench to the final process, let us take a glance at the ticket which gives the schedule of the day's work.

The eights, nines and tens have the lead and are about equal in number. Closely following come the elevens, after which there is a decided drop back to the sevens which lead the twelves by a small margin. Then, strange but true, we find the thirteens, of course in a much smaller proportion, but still numerous enough to outrank a few small-size sixes which make a poor finish upon the ticket. Possibly some fourteens and fifteens are turned out but they are not visible today.

They say that figures do not lie, so even if a man does wear a size larger overshoe than his ordinary shoe, the big sizes are still there.

But we know that the boys over there are our biggest and best, so if they are blessed with good understanding, we have all the more reason to feel proud of them.

Yours truly,

ALBERT W. BARNES.

STATEMENT OF THE INDIA RUBBER WORLD.

Statement of the ownership, management, etc., required by the Act of Congress of August 24, 1912, of THE INDIA RUBBER WORLD, published monthly in New York, N. Y., for October 1, 1918.

STATE OF NEW YORK, } ss.:
COUNTY OF NEW YORK, }

Before me, a notary public in and for the State and county aforesaid, personally appeared E. M. Hoag, who having been duly sworn according to law, deposes and says that she is the business manager of THE INDIA RUBBER WORLD, and that the following is, to the best of her knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher, The India Rubber Publishing Co., 25 West Forty-fifth street, New York City.

Editor, Henry C. Pearson, 83 Agawam Road, Waban, Massachusetts.

Managing Editor, Henry C. Pearson, 83 Agawam Road, Waban, Massachusetts.

Business Manager, E. M. Hoag, 25 West Forty-fifth street, New York City.

2. That the owners are: (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding 1 per cent or more of the total amount of stock.)

Henry C. Pearson, 83 Agawam Road, Waban, Massachusetts.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in case where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

E. M. HOAG, Business Manager.

Sworn to and subscribed before me this 28th day of September, 1918.

[SEAL] FREDK. SPRENGER,
Notary Public, Westchester County.
Certificate filed in New York County.
New York County Clerk No. 186. Register's No. 10188.
My commission expires March 30, 1920.

NEW INCORPORATIONS.

Acorn Insulated Wire Co., Inc., September 25 (New York), $300,000. F. Prosser, Bayonne, New Jersey; W. R. Prosser, 250 Lincoln Road, W. George, 102 Dean street—both of Brooklyn, New York. To manufacture insulated wire, etc.

American Rubber Co. of Chicago, October 4 (Delaware), $1,000,000. F. R. Hansell, Philadelphia, Pennsylvania; J. V. Pimm, S. C. Seymour—both of Camden, New Jersey. Principal office with the Corporation Guarantee & Trust Co., Ford Building, Wilmington, Delaware. To manufacture and deal in rubber and gutta percha, etc.

Audubon Steam Vulcanizing Co., Inc., October 16 (New York), $1,000. A. Geiger, E. R. Geiger—both of 2600 University avenue, Bronx; M. Brandt, 300 Haven avenue—all of New York City. To repair tires.

Brown Everready Tire Co., Inc., September 24 (Delaware), 3,000 shares capital stock without nominal or par value. N. C. Adossides, C. B. Reid, J. F. Cleveland—all of 42 Broadway, New York City. To manufacture and sell automobile tires.

Burns & Sears Rubber Co., May 15 (Illinois), $20,000. J. F. Burns, A. R. Sears and R. J. Carnahan. Principal office, Freeport, Illinois. To make, purchase and sell automobile tires and tubes, etc.

Carlisle Sales Co., Inc., September 25 (New York), $60,000. W. S. Sawyer, 60 Berkeley Place, Brooklyn; A. S. Mortimer, 370 Manhattan avenue, New York City; L. L. Scaserra, 136 Mountainview avenue, Staten Island—all in New York. To sell tires.

Chicago Rubber Corp., October 7 (Illinois), $1,000. M. Reinsberg, C. P. Schwartz and U. S. Schwartz. Principal office, 308 South Michigan avenue, Chicago, Illinois. To manufacture, repair, buy, and sell, at both wholesale and retail, automobile tires, supplies, accessories, etc.

Hudson Tire Co., Inc., October 7 (New York), $15,000. E. O'Beirne, 2425 8th avenue, M. Bohan, 300 West 130th street, J. O'Connor, 111 West 90th street—all of New York City. Principal office, 144th street and Lenox avenue, New York City. To manufacture tires, etc.

Independent Rubber Works, Inc., September 28 (New York), $10,000. S. and C. Gordon, both 1021, and H. L. Bishop, 919—all on Bedford avenue, Brooklyn, New York. To do a general auto supply business.

K. & S. Canadian Tire & Rubber Co., Ltd., August 22 (incorporated under the provisions of the "Ontario Companies Act," Canada), $1,000,000. W. H. Cook, J. D. Murray and G. W. Homme. Principal office, 527 Yonge street, Toronto, Ontario, Canada. To manufacture rubber sundries.

Nu-Life Tire Corp., October 5 (New York), $1,500. I. Prussack, 1817 Pitkin avenue, G. Portnoy, 535 Stone avenue, L. Orlinger, 1578 Eastern Parkway—all of Brooklyn, New York. To manufacture tires.

Peerless Tire Co., Inc., October 22 (New York), $1,000. C. and K. Pfluger and M. Guion—all of 1222 avenue C, Brooklyn, New York. To deal in tires, etc.

Sweet & Cottrell, Inc., August 26 (New Jersey), $50,000. E. F. Sweet, West Grove; R. H. Cottrell, T. C. Cottrell, both of Allenhurst—all in New Jersey. Principal office, 550 Broad street, Newark, New Jersey. F. E. Sweet is agent in charge. To manufacture, buy, sell, import, export, and generally deal in tires for vehicles of all kinds and descriptions.

Tire Brokerage Corp., September 30 (New York), $1,000. S. A. Paul of 2650, J. L. Diamond and D. D. Deutsch, both of 1789—all on Broadway, New York City. To deal in tires and rubber goods.

Tire Mileage Renewer Corp., October 17 (New York), $10,000. K. G. Brett, 175 Jay street, Albany, New York; B. B. Glidden, E. H. Glidden, both of Leonia, New Jersey. Principal office, Buffalo, New York. To deal in automobile supplies.

Washington Vulcanizing Co., The, July 30 (Indiana), $10,000. E. K. and M. B. Sudduth, F. B. Cox, C. C. Martin and C. E. Patton—all of Washington, Indiana. Principal office, Washington, Indiana. To buy and sell motor vehicles, trucks, and trailers.

Yankee Leather Tire Co., September 30 (Delaware), $95,000. C. L. Rimlinger, M. M. Clancy, F. A. Armstrong—all of Wilmington, Delaware. Principal office is with the Corporation Trust Company of America, Du Pont Building, Wilmington, Delaware. To manufacture and deal in treads for automobile tires, etc.

RUBBER TRADE INQUIRIES.

THE inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The editor is therefore glad to have those interested communicate with him.

(665.) A reader asks for the address of the manufacturer of the nipple recommended by Dr. Brophy of Chicago for split-palate nursing.

(666.) A subscriber requests the address of manufacturers of small rubber rings.

(667.) A dealer has inquired for lists of manufacturers of perforated rubber mats and rubber bands.

(668.) A correspondent requests prices for tire rebuilding machinery and appliances.

(669.) A reader wishes the addresses of makers of repair stocks containing reclaimed rubber, properly compounded for use in retreading tires.

(670.) A reader asks for the address of the manufacturer of "Ruberine."

(671.) An inquiry has been received as to where rubber substitute can be purchased.

(672.) Request is made for the address of somebody who can supply wood flour such as used by rubber manufacturers.

(673.) A reader asks where he can obtain latex strainers.

(674.) A manufacturer wishes to obtain metallic hose for covering with rubber and cotton.

TRADE OPPORTUNITIES FROM CONSULAR REPORTS.

Addresses may be obtained from the Bureau of Foreign and Domestic Commerce or its district or co-operative offices. Request for each should be on a separate sheet, and state number.

(27,538.) A firm in Italy wishes an agency for waterproof coverings.

(27,562.) A chemical company in England wishes to secure an agency for the sale of carbon black, lithopone, and other chemicals used by the rubber trade.

(27,566.) An agency is desired, on a commission basis, by a man in France for the sale of waterproofed linen, rubber-lined cloth for clothing, and other waterproofed cloth. Correspondence should be in French.

(27,572.) A firm in Spain desires to represent American manufacturers and exporters of automobile accessories. Correspondence should be in Spanish or French.

(27,577.) A business man in Argentina wishes to represent American manufacturers and exporters of tires. Correspondence may be in English.

(27,583.) An agency is desired by a company in Chile for the sale of American automobile accessories. Correspondence may be in English.

(27,592.) A company in Australia desires an agency for rubber goods.

(27,593.) A retail man in France desires an agency for rubber and rubber goods. Correspondence should be in French.

News of the American Rubber Industry.

EMERGENCY HOSPITAL OF THE HODGMAN RUBBER CO.

THE effect of influenza on the rubber mills might have been more serious had not the manufacturers promptly adopted the most efficient methods in combating the disease. Regardless of convenience or expense they have safeguarded the health of their employes and in many instances joined hands with each other in this laudable work.

The value of community of interest was admirably demonstrated last month at Tuckahoe, New York, where the influenza was making considerable inroads among the employes of the Hodgman Rubber Co. Realizing the danger, George B. Hodgman telephoned Frederic C. Hood, whose company at Watertown, Massachusetts, had just experienced a struggle with the disease, asking if doctors and nurses could be secured from that section, as none were available in the vicinity of New York. Prompt and generous was the answer from Mr. Hood who immediately sent to Tuckahoe one of the physicians and two nurses from the Hood Rubber Company's staff, who were later followed by others. Suitable hospital quarters could not be found in town, but fortunately the modern office building of the Hodgman Rubber Co. offered ideal accommodations. Forthwith, the second story of the west wing was vacated by the officials of the company and quickly transformed into a modern sanitary hospital. The kitchen and the employes' restaurant in the same building were also placed at the disposal of the hospital staff and the nearby home of F. A. Hodgman was opened for their accommodation. When a sufficient number of beds could not be obtained in New York, an order was sent to Boston and 25 additional cots were promptly delivered by motor truck. Thus Emergency Hospital No. 2, as it is known, was created by the common interest of two well-known rubber companies and the local chapter of the American Red Cross, for the benefit of the mill workers and the citizens of Tuckahoe and nearby villages.

HODGMAN OFFICE BUILDING CONTAINING TEMPORARY HOSPITAL.

SOCIETY OF CHEMICAL INDUSTRY, NEW YORK SECTION.

The New York Section of the Society of Chemical Industry held a meeting on October 25, at Rumford Hall, 50 East 41st street, New York City. The program consisted of an address by Major H. W. Dudley, British-American Anti Gas Service, entitled, "Gas Warfare Both Offensive and Defensive." The illustrations were official English war pictures. The usual informal dinner was held at the Chemists' Club before the meeting.

SENTENCES IN RAINCOAT FRAUD CASES.

The investigations in the cases of the raincoat makers in New York City charged with various unpatriotic and criminal practices, have resulted to date in the pronouncement of two sentences. Felix Gouled, the army contractor accused of conspiracy with Captain Aubrey W. Vaughan to defraud the Government, was convicted of this charge in the Federal District Court during the week of October 14 and sentenced on October 22 by Judge E. E. Cushman to pay a fine of $10,000 and serve seven years in the Atlanta penitentiary. His counsel asked that he be released on bail pending an appeal, and this was agreed upon, the amount being fixed at $25,000, which Gouled furnished. Gouled is facing trial under a further charge of sabotage, and if convicted may be sent to prison for an additional 25 years.

Captain Vaughan was sentenced to two years in prison, upon pleading guilty to a part in the conspiracy. Clemency for him will have to come from the President, the judge stated, as he was sentenced while wearing his full uniform.

The case of the C. Kenyon Co. was also begun on the 22nd of October, in Brooklyn, and nineteen others are to follow.

David L. Podell, the lawyer employed by some of the companies to draw up their agreements, was exonerated from any complicity and received a certificate from the judge and jury to that effect after a six days' trial.

DIVIDENDS.

The B. F. Goodrich Co., Akron, Ohio, has declared its regular quarterly dividends of $1 a share on common stock, payable February 15, 1919, to stock of record February 5, and of $1.75 a share on preferred stock, payable January 2, 1919, to stock of record December 20, 1918.

The Hood Rubber Co., Watertown, Massachusetts, has declared its regular quarterly dividend of one and three-quarters per cent on preferred stock, payable November 1 to stock of record October 19, 1918.

The Kelly-Springfield Tire Co., New York City, has declared a quarterly dividend of one dollar ($1) a share on its common stock, payable November 1 to stock of record October 15, 1918.

The Keystone Tire & Rubber Co., New York City, has received the approval of the Capital Issues Committee of a stock dividend of fifteen per cent, payable December 1 to stock of record November 11, 1918.

The United States Rubber Co., New York City, declared quarterly dividends of two and one and one-half per cent, respectively, on its first and second preferred stock, payable October 31 to stock of record October 15, 1918.

The Westinghouse & Electric Manufacturing Co., East Pittsburgh, Pennsylvania, declared its regular quarterly dividends of one and three-quarters per cent on its common and preferred stock, the former payable October 31 and the latter October 15, to stock of record October 4, 1918.

THE PETLEY RUBBER COMPANY'S FINANCIAL PLAN.

Lynn S. Pease, acting general manager of the Petley Rubber Manufacturing Co., Milwaukee, Wis., reports that a committee consisting of Andrew Bause, chairman, Otto J. Koch, Frank J. Edwards, E. F. Hase and J. J. Hosch, has been formed to work out a plan so that creditors may be paid one hundred cents on the dollar. They claim that the total assets of the company are about equal to the total liabilities, and that the present production is almost entirely for the Government, either directly or indirectly. The company plans to issue notes to its creditors payable in 6, 12, 18 and 24 months, with interest at 6 per cent per annum, accounts of less than $100 to be paid within 90 days.

GEORGE E. HALL.

AT the annual meeting of the Boston Woven Hose & Rubber Co., held at Cambridge, Massachusetts, October 7, 1918, George E. Hall, formerly vice-president and general manager of the company, was unanimously elected president and general manager, succeeding Henry B. Sprague, treasurer, who served as president during a portion of the year pending the annual election. Mr. Sprague continues as treasurer and assumes the additional duties of vice-president.

GEORGE E. HALL.

Mr. Hall has been associated with the company eleven years, having previously been identified with the paper manufacturing industry. Coming to the Boston Woven Hose & Rubber Co. in 1907 as general manager, although unacquainted with the rubber industry, he quickly mastered the details and has practically rebuilt the plant, and increased the annual business from $2,000,000 to $10,000,000.

Mr. Hall's election to the presidency comes as a fitting tribute to the irrepressible energy and enthusiasm with which he has led his organization in the upbuilding of a business which may easily rank as one of New England's leading industries.

PERSONAL MENTION.

Seneca G. Lewis has been elected vice-president and general manager of the Pennsylvania Rubber Co., Jeannette, Pennsylvania, sharing the office of vice-president with Major C. M. Du Puy, now in France.

H. L. Parmenter has been appointed manager of the Chicago branch of the General Asbestos & Rubber Co., Charleston, South Carolina. He has been in the employ of the company for four years and was previously identified with the manufacturing of packing in the East.

Robert A. Suffern has been appointed manager of the textile department of G. Amsinck & Co., importers of crude rubber and other products, 90 Wall street, New York City. The textile department will handle cotton goods for foreign export.

George H. Carnahan, president of the Intercontinental Rubber Co., New York City, has been appointed vice-president and a director of The Bayer Co., Inc., 117 Hudson street, the same city, by the Alien Property Custodian who now controls the latter organization.

William Pfeiffer, president of the Miller Rubber Co., F. H. Adams, ex-treasurer of The Goodyear Tire & Rubber Co., C. I. Bruner, president of the First-Second National Bank, all of Akron, Ohio, and Captain Ernest E. Buckleton, president of the Northwestern Rubber Co., Litherlands, Liverpool, England, have recently returned from a hunting and fishing trip north of Quebec.

J. H. Fenton, who was some time ago appointed industrial division manager of the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania, in Los Angeles, California, is responsible for the activities of the industrial salesmen for the district comprising Southern California, Arizona, New Mexico, and western Texas.

W. H. Hildreth, managing director, Aldens' Successors, Limited, London, England, arrived in New York City last month on a business trip.

A. Powell succeeds H. von Briesen, resigned, as purchasing agent for The Savage Tire Corp., San Diego, California.

J. N. Dine, for five years manager of the Omaha, Nebraska, branch of The Goodyear Tire & Rubber Co., Akron, Ohio, has been promoted to the assistant managership of the Chicago branch. He is succeeded in Omaha by C. A. Cramer.

George H. Brush has been elected second vice-president of the Sterling Tire Corp., Rutherford, New Jersey.

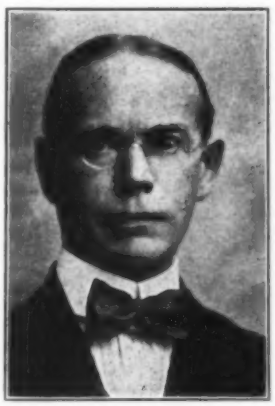
Julius Oppenheim is now manager of The Loewenthal Co., rubber scrap dealer, 23 Heyward street, Brooklyn, New York, succeeding Paul H. Loewenthal who has enlisted in the Tank Corps.

J. E. Allen, formerly a salesman for the Braender Rubber & Tire Co., Rutherford, New Jersey, operating out of Chicago, has been made sales manager with headquarters at Rutherford.

George W. Gibbs, formerly advertising manager, is now purchasing agent of the Hodgman Rubber Co. Tuckahoe, New York. F. H. Whitney, who had held this position for fifteen years, has retired to his farm in Florida.

IRVING B. FERGUSON.

IRVING B. FERGUSON, whose name has become familiar to the American rubber industry through his work in connection with the Government's statistical requirements, is a certified public accountant of note.



IRVING B. FERGUSON.

His name and address will be found on all questionnaires sent out to the rubber trade by the War Trade Board, as the Government's accredited agent in charge of the compilation of these statistics. He has recently received a commission by virtue of which he has taken over some important auditing departments of the War Trade Board.

Mr. Ferguson is a native of New York City and received his early schooling in Paris, Switzerland and Italy. His education, however, was completed in this country, he having graduated from Yale in 1893.

He is a member of the New York Society of Certified Public Accountants and the American Institute of Accountants. His home is in Pelham, Westchester County, New York, and as a member of the Pelham Country Club and the Wykagyl Country Club he enjoys tennis and golf.

AMERICAN COTTON FABRIC FOR AIRPLANES.

At the outbreak of the war, linen was considered the only material satisfactory for covering airplane wings, but after the imported stock now on hand is exhausted, only cotton fabric will be used for the purpose on American airplanes. Two fabrics were adopted, the specifications calling for a strength of not less than 80 pounds per inch, in both warp and filling. The first contracts were placed by the Government in September, 1917. In October and November, 1,480,000 yards were ordered. In January, 1918, the production was 173,000 yards. It is now 1,200,000 yards monthly. Contracts have now been let for 11,513,084 yards of fabric, made of long-staple cotton.

TRADE NOTES.

John Royle & Sons, Paterson, New Jersey, have purchased the name, good-will, tools, patterns, etc., of the Clark tubing machine from the estate of Edred W. Clark, Hartford, Connecticut.

The Keystone Tire & Rubber Co., 1877 Broadway, New York City, elected the following directors at the annual meeting of its stockholders: L. Walter Lissberger, Joel Jacobs, Sydney Bernheim, Nathan J. Miller, and Harry H. Jacobson. The capital of the concern has been increased from $1,500,000 to $2,000,000.

The Victor Rubber Co., Springfield, Ohio, is completing a two-story factory addition of tile and concrete construction, to be used exclusively for making tires. Modern machinery and equipment are being installed.

G. Amsinck & Co., importers of crude rubber and other products, have removed from 6 Hanover street to 90-96 Wall street, New York City.

The Continental Tire & Rubber Co., 748 St. Charles street, New Orleans, Louisiana, is planning the erection of a factory as soon as permission can be obtained from the Government. It will manufacture Continental tires. George A. Wood is president.

Charles B. Chrystal, importer of minerals, clays, and colors, 11 Cliff street, New York City, has purchased a two-story warehouse at Bishop and Canal streets, Jersey City, New Jersey, to which he will remove as soon as alterations are completed. The new location will give better facilities for handling increasing business.

The Schaefer Rubber Co., 16 East Fourth street, Cincinnati, Ohio, has increased its capital from $50,000 to $100,000. The concern maintains a store at 15 East Grand River street, Detroit, also, and the increased capitalization is for the purpose of taking care of its growing trade.

The Sewell Cushion Wheel Co., Detroit, Michigan, has been elected to membership in the Motor and Accessory Manufacturers Association.

The Oriental Rubber and Supply Co., 1166 Bedford avenue, Brooklyn, New York, has increased its capital stock from $10,000 to $25,000.

The Federal Rubber Co., Cudahy, Wisconsin, is working on a government gas mask contract on which more than 100 women are employed. In other departments women are being trained to take the places of men wherever possible.

The Paralite Co. has removed from 609 to 416-417 Swetland Building, Cleveland, Ohio.

S. A. E. ADOPTS MOTORCYCLE TIRE SPECIFICATIONS

The Tire and Rim Division of the S.A.E., at the Cleveland meeting, July 12, 1918, adopted the following motorcycle tire capacities and inflation pressures, these now being adopted by the society also:

Tire Size.	Maximum Load. (Pounds per tire.)	Corresponding Inflation Pressure. (Pounds per sq. in.)
2¼	175	35
3	325	40
3½	400	45

FORMER BOSTON TIRE MAN RETURNS TO THE HUB.

Thomas R. Burton has been appointed manager of the Boston branch of the United States Tire Co. during the term of the leave of absence granted E. P. Kidder, who is temporarily with the Emergency Fleet Corp. Mr. Burton has been in the tire business since 1900 when he became salesman in Boston for Morgan & Wright. From 1908 until 1911 he was manager of the Boston branch, then branch manager in Pittsburgh, Pennsylvania, and later eastern district manager for the United States Tire Co., which absorbed the Morgan & Wright company. For the last four years he has been located at Atlanta, Georgia, as branch manager in charge of the business in the South. His return to Boston brings him back among old friends, with whom he is most popular.

CANADIAN NOTES.

THE Dunlop Tire & Rubber Goods Co., Limited, Toronto, Ontario, was one of the prominent exhibitors at the annual Canadian National Exhibition recently held in that city. This concern manufactures tires and inner tubes, rubber heels and soles, mechanical belting and packing, hose, etc. Its various products were extensively displayed in four different booths and attracted merited attention at the exhibition.

Scheuer, Normandin & Co., Montreal, Quebec, are handling in Canada the "Leisure" line of rubber footwear manufactured by the Hood Rubber Co., Watertown, Massachusetts, U. S. A.

The Miner Rubber Co., Limited, Toronto, Ontario, has removed its offices from 146 Wellington street West to 144 Front street West, where it will occupy all of the ground floor, comprising 12,500 square feet of space.

Victor G. van der Linde, until recently development manager of The B. F. Goodrich Co., Akron, Ohio, U. S. A., has resigned in order to take charge of the factory of the van der Linde Rubber Co., Toronto, Ontario. This change has made necessary the further resignation from the vice-chairmanship of the Aircraft Committee of The Rubber Association of America, Inc.

C. H. Cooper, sales manager of the Lynn Rubber Manufacturing Co., Warren, Rhode Island, U. S. A., has been demonstrating the company's foot comfort devices in Toronto recently, at the Robert Simpson Co. store.

Richard Hamer, with the Gutta Percha & Rubber Co., Ltd., Toronto, Canada, holds a research scholarship under the Industrial and Scientific Research Council, appointed by the Canadian Government. The subject of his research was "Aging and Decay of Rubber." The first report has just been completed and deals specifically with "The Direct Examination of Colloidal Rubber Solutions by the Aid of the Ultramicroscope."

Canadian rubber manufacturers held a meeting in October at Toronto, to consider the conservation of rubber by eliminating certain styles of rubber footwear. Canadian manufacturers have for several seasons been doing away with some of their former models, and this and the fact that not as many styles are made in Canada as in the States will lessen numerically the number of styles to be eliminated, as compared with the large number recently listed for elimination in the States. This action is an independent one on the part of the manufacturers, and merits particular commendation for that reason. The changes are to be listed and the final form submitted to the manufacturers first and subsequently to the Canadian War Trade Board for approval.

At a meeting of officials of the Canadian Government on October 22, it was decided to proceed with the plans for raising the Second Victory Loan, the Fifth War Loan, in spite of the prevalence of influenza, it being remarked that the United States had set a splendid example in oversubscribing her Fourth Liberty Loan of $6,000,000,000 in spite of the great handicap suffered from influenza while the drive was in progress in the States.

The campaign for Canada's Second Victory Loan accordingly began October 28, the amount to be raised having been set at $500,000,000. Premier Borden bought the first bond but the Duke of Devonshire was the first subscriber by letter.

One of the posters being used shows the heads of the rulers of the four enemy nations above the words: "4 reasons for Buying Victory Bonds." Another reproduces the now famous picture of three French women dragging a plow; above it are the words, "They Serve France." Beneath is the question: "How can I serve Canada?" followed by the convincing answer, "Buy Victory Bonds."

JUDICIAL DECISIONS.

PANTHER RUBBER MANUFACTURING CO., *v.* I. T. S. Co., Circuit Court of Appeals, Sixth Circuit, March 15, 1918.

The Ferguson patent No. 638,228, for a rubber-heel attachment for boots and shoes, is construed as having a raised marginal portion on the upper side of the tip, leaving a substantial depression in the center. This, it was declared, was not infringed by a heel having shallow scorings or channels in the shape of a shield. (Federal Reporter, Volume 250, page 253.)

FEATHEREDGE RUBBER CO., *v.* MILLER RUBBER CO., ET AL.—District Court, N. D. Ohio, E. D., June 26, 1918.

The Willis & Felix patent No. 1,045,234, for a process for making rubber sponges was held invalid because of the insufficiency of the disclosures to enable one skilled in the art to manufacture sponges with commercial success.

The only step that discloses invention is that of curing under steam pressure in order to preserve intact the walls of the cells formed by the expansion of the blowing material until they can be mechanically ruptured.

A like process was used by the Goodrich people in 1903. They later discontinued the manufacture of the article because of the excessive waste.

Willis & Felix did not disclose a workable compound or blowing and moderating material and with the ordinary compounds the process was not workable. The patent was therefore held invalid. (Federal Reporter, Volume 250, page 255.)

BARRETT ET AL. *v* SHEAFFER.—Circuit Court of Appeals, Seventh Circuit, January 2, 1918.

The Sheaffer patent No. 1,118,240, for improvements in attachment for self-filling fountain pens, consisting of a spring arrangement to hold the presser bar firmly, independent of the compessible reservoir in connection with a lever-filling device, held valid and infringed as to claims 1 and 2.

Barrett contracted to make 10,000 holders for the Kraker Pen Co. He delivered some of these, understanding that they would be made into an infringing article. It was therefore found that he was guilty of contributary infringement. Interference proceedings are now pending in the Patent Office. No infringement was found in claims 3, 4, 5, 7, and 11. (Federal Reporter, Volume 251. Page 74.)

CUSTOMS APPRAISER'S DECISIONS.

TENNIS BALLS.—The duty on tennis balls, imported by A. L. Tuska Son & Co., of this city, is reduced in a decision rendered by the Board of General Appraisers. When entered here, the customs collector levied duty at the rate of 35 per cent ad valorem, the provision for toys in paragraph 342 of the Tariff Act of 1913. The protestants contended for duty at 30 per cent ad valorem under paragraph 266 as manufactures in chief value of cotton; at 25 per cent ad valorem under paragraph 368 as manufactures of grass, straw or weeds, or at 10 per cent ad valorem under paragraph 368 as manufactures of india rubber or gutta-percha, not specially provided for.

It was shown by the testimony that the merchandise is not a toy and analysis proved that cotton was the component material of chief value therein. Accordingly, it was held dutiable at 30 per cent ad valorem under paragraph 266.

ELASTIC BRAIDS.—The collector's assessment of duty on certain elastic braids is upheld in a decision overruling a protest of Calhoun, Robbins & Co., New York City. The appraiser reported that the goods in question consisted of "elastic braids composed of cotton and india rubber threads and of silk and india rubber threads." Duty was assessed at the rate of 60 per cent ad valorem under paragraph 358 of the Tariff Act of 1913. The importers claimed, that the braids were properly dutiable at the rate of 45 per cent ad valorem under paragraph 316, or at the rate of 25 per cent ad valorem under the provision in paragraph 262 of said act for "fabrics with fast edges, not exceeding twelve inches in width, all of the foregoing made of cotton or other vegetable fiber, or of which cotton or other vegetable fiber is the component material of chief value, or of cotton or other vegetable fiber and india rubber, and not embroidered by hand or machinery." The protest was overruled in view of the record.

REAPPRAISEMENTS.

Reappraisements of merchandise recently made by the Board of General Appraisers follow:

SIAK.—From the United Malaysian Rubber Co., Singapore, exported May 18, 1917, entered at New York, August 10, 1917. File No. 92220. Entry No. 206163-2. McClelland, G. A.: Siak reboil, entered at $23; reappraised at $25.25 per picul. Add packing.

JELUTONG.—From Ned. Ind. Boschproducten Maatschappij, Banjermassin, Borneo, exported Nov. 25, 1917; entered at New York March 3, 1917. File No. 90290. Entry No. 127447-2. McClelland, G. A. Jelutong (ordinary); invoiced at 8.70 florins per picul. Gutta Hangkang; invoiced at 23 florins per picul. Gutta Katiau; invoiced at 16 florins per picul. Entered at same prices plus buying expenses. Reappraised as entered. Add cases on all.

GUTTA PERCHA, ETC.—From Ned. Ind. Boschproducten Maatschappij, Banjermassin, Borneo, exported June 25, 1917; entered at New York October 9, 1917. File No. 92743. Entry No. 230046-2. McClelland, G. A.: Gutta Dotrian; invoiced at 54 florins per picul. Gutta percha; invoiced at 27 florins per picul. Gutta Katiau, first quality; invoiced at 19.50 florins per picul. Gutta percha; invoiced at 26.50 florins per picul. Entered at same prices plus buying expenses. Reappraised as entered. Add cases on all.

GUTTA PERCHA, ETC.—From Ned. Ind. Boschproducten Maatschappij, Banjermassin, Borneo, exported August 11, 1918, entered at New York January 30, 1918. File No. 94280. Entry No. 8649-1. McClelland, G. A.; Gutta percha; invoiced at 27 florins per picul. Gutta Katiau, 1st qual.; invoiced at 19.50 florins per picul. Entered at same prices plus buying expenses and coolie hire. Add cases. Reappraised as entered.

JELUTONG, ETC.—From Ned. Ind. Boschproducten Maatschappij, Banjermassin, Borneo, exported September 27, 1917; entered at New York January 31, 1918. File No. 94282. Entry No. 9009-1 McClelland, G. A.; Jelutong, ordinary, invoiced at 11.20 florins per picul. Gutta Katiau, first quality, invoiced at 19.60 florins per picul. Gutta percha, invoiced at 28.50 florins per picul. Add cases. Entered at same prices plus coolie hire and buying expenses. Reappraised as entered.

GUTTA KATIAU.—From Ned. Ind. Boschproducten Maatschappij, Banjermassin, Borneo, exported March 15, 1918; entered at New York September 2, 1918. File No. 94294. Entry No. 13607-2. McClelland, G. A.; Gutta Katiau, first quality, invoiced at 19.25 florins per picul. Add cases. Entered at same prices plus buying expenses and coolie hire. Reappraised as entered.

RUBBER SPONGE MANUFACTURE—A CORRECTION.

The following in the September issue of this journal was a bit of carelessness on the part of the Editor and merits correction. The statement was: "The equipment for making bath sponges, for example, is just right for sponge rubber in gas masks."

The thought intended was that the mental equipment, that is the experience, gained in making rubber sponges would be available for the manufacture of sponge rubber for gas masks and for a variety of other war uses. As to the mechanical equipment being the same in the manufacture of rubber sponges and sponge rubber, it is not. The former calls for machinery and devices that cannot be used at all for the latter.

THE RUBBER TRADE IN BOSTON.

By Our Regular Correspondent.

BOSTON has been hard hit by the epidemic of influenza and its after-course pneumonia, and there were few manufacturing establishments in any line which were not restricted in their working forces on account of the contagion. Happily, the disease is greatly modified in virulence, and business is going along more nearly as it was before the trouble appeared. However, rubber factories are running far from normal, with those having government contracts much busier than the others. The restriction of crude rubber supplies and the curtailment of production are working a hardship on many manufacturers, some of whom cannot fill the orders on their books, and must refuse new business offered them. In spite of this the rubber trade of New England has done its full share in subscribing for the Fourth Liberty Loan Bonds, as it did for the three previous loans.

* * *

The Boston Rubber Shoe Co. has recently opened Aldine House, a delightful home for girls, convenient to its Melrose factory. The house, which is modern in all its equipment, contains 40 well-furnished rooms, giving comfortable home surroundings at low cost to the young women who are fortunate enough to secure these accommodations. Home cooking, with pure milk and vegetables from the company's own farm, are attractive features of the table. The management is in the hands of P. F. and J. T. Bean, who have had years of experience in work of this kind. This is an excellent example of the manner in which rubber manufacturers seek to make their workers comfortable, that their vocations may be attractive.

ALDINE HOUSE.

* * *

Everlastik, Inc., of this city, is doing an immense business in the manufacture of elastic webbing for the production of gas masks for the United States Government. With its present facilities it is turning out each week between 750,000 and 800,000 yards of inch-wide webbing for this special purpose, besides providing other lines of webbing for its regular trade. The corporation has in contemplation the erection of a three-story building in Chelsea, 250 feet long, to accommodate this special work for the Government.

* * *

There was quite a scare at the Melrose factory of the Boston Rubber Shoe Co. one day last month, when several rooms were filled with smoke, and the fire alarm was sounded. No panic ensued, though there was a general rush for exits. Investigation proved that the fire was in the mixing room, which is fireproof. The blaze was extinguished by chemicals, with only a small loss incurred.

* * *

An explosion of gasoline at the plant of the Ryan Ideal Stain and Blacking Co., Lynn, on September 30, completely demolished the building, causing a loss of about $20,000 and resulting in the death of the shipper, George Fred Stocker, Jr., the only person in the building at the time, who was buried in the débris when the building collapsed. State Officer Murray who investigated the matter, believes that gasoline which Stocker was using to wash out cement cans, caught fire and caused the explosion.

* * *

J. B. Waddell has been placed in charge of the Boston branch of the Firestone Tire & Rubber Co., Akron, Ohio, succeeding C. C. Goodwyn, resigned.

* * *

The Cambridge Rubber Co. has recently completed and is transferring a portion of its machinery to a new brick two-story building adjacent to its main factory on Main street, Cambridge, and has also purchased a fine four-story brick building immediately in the rear, thus making six substantial buildings at its plant. This concern has shown steady progress since 1914. Though started two years before, it was in that year that Warren MacPherson assumed the presidency of the company. The working force now numbers over 500 persons. George Rockwell, the general manager, has just gone to the Artillery School at Camp Zachary Taylor, and Mr. MacPherson will assume the duties of management during his absence. The company is busy on coated fabrics and slickers for the Government, and is manufacturing a line of heels, soles and other molded goods, under the supervision of Mr. Garber, formerly of the Plymouth Rubber Co., and more recently with the heel and sole department of the Hood Rubber Co.

* * *

The Boston Belting Co. has discontinued its Boston office at 100 Summer street, and located its business office at the factory on Linden Park street, Roxbury, thereby putting the management in closer touch with the work, and in the end it is expected to be of advantage to the customers of the company. W. E. Hardy, who was general sales manager until the acquisition of the majority of the stock some months ago by Willet, Sears & Co., has returned to the concern and has been appointed general manager. Business is being carried on as usual, with a large amount of work on hand, the only drawback being the difficulty in holding a complement of workers owing to the draft and the recent epidemic of influenza.

* * *

The fiscal year just completed in September has been the largest in the history of the Boston Woven Hose and Rubber Co., East Cambridge, the sales totaling well over $10,000,000 and the plant, now entirely composed of modern reinforced concrete buildings, includes a total of more than 20 acres of floor space. It is recognized as one of the largest and best-equipped plants devoted exclusively to the manufacture of mechanical rubber goods.

THE RUBBER TRADE IN AKRON.

By a Special Correspondent.

THE Government expects to move 40 per cent more freight from the Middle West in 1919 than has been carried during the present year. This means that trucks must assist the railroads as never before, and that the coming year will go down in truck tire history as one of the greatest. Rubber and other Ohio industries are already planning an emergency program for short freight haulage over the highways by motor trucks, employing records, insurance, etc., as in the case of railway freight. The State Highways Transport Committee, appointed by Governor Cox, and of which S. V. Norton, truck tire manager of The B. F. Goodrich Rubber Co., Akron, Ohio, is a member, is now making an analysis of the total tonnage hauled, the routes by which it is or might be carried by motor trucks, and the supply of trucks and drivers. Every state may well have similar information in readiness in case of need.

* * *

Six nurses formerly in the hospital department of The B. F. Goodrich Co., Akron, are now in service. Their pictures are shown on this page, as follows: top, left to right—Ella Brown, at a base hospital somewhere in France; Clara Bagent, at base hospital, Camp Sheridan, Alabama; Margaret Trew, in Porto Rico with the American Nursing Corps; below, on ends—Ruth and Mary Sterley, sisters, at Camp Sherman, Ohio; below, center, Mabel Carlson, at Camp Meade, Maryland.

GOODRICH NURSES IN SERVICE.

* * *

Employes and officials of The B. F. Goodrich Co. reached their quota of $2,150,000 towards the Fourth Liberty Loan in less than forty-eight hours. This did not include subscriptions from any of the 125 branches maintained by the company or the $500,000 purchase by officials of the company in New York.

In response to the call of the Government for material from which to manufacture carbon to put in soldiers' gas masks, The B. F. Goodrich Co. has put Captain L. D. Dana of its Gas Defense Division in charge of making collection throughout Summit County of various kinds of fruit-pits and nut-shells. Government trucks are being used and two tons have been collected already. This material is being dried at Red Cross headquarters in Akron. The public is urged to save and dry all such pits and shells to contribute to the work.

Ralph Moore succeeds A. H. Miner in the legal department of The B. F. Goodrich Co., Akron.

Sixteen employes of the Goodrich company have been retired during the last year under the terms of the company's pension plan. One of these had been with the company 38 years and 11 others, periods varying from 15 to 31 years. Out of the sixteen, four were in the same department and three others in another one.

* * *

The Firestone Tire & Rubber Co. has posted a card in each department where all the employes have pledged themselves voluntarily to work full time for the duration of the war. It reads as follows: "The employes in this room 100 per cent voluntarily pledged themselves to work full time till our country and its allies win the war." Three thousand employes have already signed this pledge and more are signing daily.

The Firestone Tire & Rubber Co. raised more than its quota of subscriptions to the Fourth Liberty Loan in less than a week. One department averaged $168 for each employe, raising $8,000.

Lessons in French were started in October at the Firestone Club for the benefit of girls employed by the Firestone Tire & Rubber Company.

H. G. Kitt succeeds F. M. Morris, enlisted, as factory paymaster at the plant of the Firestone company.

* * *

The Mason Tire & Rubber Co., Kent, has been awarded a contract by the United States Army to manufacture raincoats. Additional space has been leased for the duration of the war and the company expects to be turning out 1,000 coats daily by January 1, 1919.

* * *

The Electric Motor & Repair Co., Akron, maintains a repair department for the purpose of repairing electrical equipment of rubber factories. It also offers the services of its engineering department to its customers.

* * *

Every employe on the payroll of The Marathon Tire & Rubber Co., Cuyahoga Falls, subscribed to the Fourth Liberty Loan, thus winning the 100 per cent honor flag.

* * *

The Western Reserve Rubber Co., Akron, has increased its capital from $10,000 to $50,000.

* * *

The Avalon Rubber Manufacturing Co., Akron, has increased its capital stock from $50,000 to $200,000.

* * *

Akron factories, as well as the city, will continue on Eastern time until November 28, the Council having passed the necessary resolution to make this effective.

THE RUBBER TRADE IN RHODE ISLAND.

By Our Regular Correspondent.

LABOR shortage as a result of war conditions, coupled with the forced temporary abandonment of work by those suffering from the recent outbreak of influenza, materially curtailed the output of the several plants manufacturing rubber goods in Rhode Island. This was particularly discouraging because of the fact that many of the establishments had fallen far behind their schedules in production and delivery on contracts during the six weeks' strike and shut-down previous to the first of September.

Orders in large volume continue to be received, but the officials find it impossible to keep pace with the increasing demands. For some time a growing number of manufacturers, including rubber concerns, have been taking the attitude, that for at least the period of the war, immigration laws should be less stringent in order that a normal supply of labor for manufacturing purposes may be available. Throughout the state the rubber industry continues to be driven to its utmost, and notwithstanding

the great expansions and improvements which the plants have undergone during the last year, they have been utterly unable to maintain the balance of supply and demand.

* * *

Although the "Fighting Fourth Liberty Loan" in this State was not conducted along industrial lines, as was the case in the three preceding campaigns, still the manufacturers of rubber goods and the allied interests made themselves so prominent that they were fully recognized. Rhode Island had an allotment of $50,000,000, of which $30,000,000 was accredited to the city of Providence, which was practically twice the sum called for by the Third Liberty Loan. But notwithstanding this great increase, those in charge went systematically to work and succeeded in securing a total of more than $61,000,000 in the state and nearly $35,000,000 in Providence.

On the night preceding the conclusion of the campaign a special gathering was held at the Turk's Head Club at which $7,458,750 was subscribed, the greater part of which was taken by corporations and individuals that had already subscribed liberally. Only the week before a similar meeting was held at the same place at which $1,250,000 was subscribed. Colonel Samuel P. Colt, president of the United States Rubber Co., who had otherwise taken a large amount of the bonds, was one of six who subscribed $100,000 each, at the first meeting. He pledged at the second meeting $1,000,000 in addition to what he had previously taken and then took $50,000 each for his two sons in the service—Russell G. and Roswell C. Colt.

It was estimated on the 16th of the month that the employees of the National India Rubber Co. would subscribe fully $1,000,000 to the loan.

The Woonsockett Rubber Co., Woonsocket, doubled its $75,000 subscription to the Third Liberty Loan and took $150,000 of the present issue.

At the National India Rubber Co., Bristol, the overseers, foremen and forewomen held a meeting early in the campaign and formulated a plan whereby a thorough canvass was made of the entire plant. The result was that a substantial subscription of bonds was secured, 2,554 employes taking an aggregate of more than $200,000.

The Bourn Rubber Co. subscribed $14,000 for its employes, and the Glendale Elastic Fabric Co. announced its subscription for $75,000, of which $15,000 was credited to Providence and $60,000 to Easthampton, Massachusetts.

* * *

A two-day conference of the superintendents of departments in ten of the manufacturing plants connected with the Footwear Division of the United States Rubber Co. opened at the National India Rubber Co.'s plant, at Bristol, on October 16. The factories represented are located in Cambridge, Millville and Malden, Massachusetts; New Haven, Waterbury and Naugatuck, Connecticut; Newark and New Brunswick, New Jersey, and Woonsocket and Bristol, this state. There were also representatives from the New York office, the party numbering 27 visitors from the eleven cities mentioned, and 20 superintendents of departments in the National India Rubber Co. The visiting representatives inspected the footwear and wire departments and had explained to them the various processes of manufacture. The entertainment provided included luncheon at the National company's plant, music by the orchestra, a Rhode Island clam bake at Colt Farm, and addresses by George Schlosser, the vice-president, M. H. Clark, general footwear factory manager, and others.

* * *

Acting under instructions from George Schlosser, general factory manager, the Woonsocket Rubber Co. in Millville and Woonsocket early last month started upon a plan of giving the operatives in all departments fresh air and rest as means of promoting health during the epidemic of influenza which caused an unusual amount of sickness and several deaths. At 10 o'clock in the forenoon and again at 3 o'clock in the afternoon employes were allowed to go into the mill yards for fresh air and relaxation. A similar plan was also put into execution at the National plant, Bristol.

* * *

Since its resumption of work following the several weeks of enforced shut-down because of labor controversies, the National India Rubber Co. has been pushing its facilities to the utmost at the Bristol plant to recover lost time. Early in October the announcement was made that the company had received a contract from the United States Government for 300,000 pairs of hospital shoes. This company has installed two new and larger steam boilers, a brick chimney to replace two old brick chimneys, while one iron stack is being erected to serve the whole battery of 15 boilers at the plant. It will be the tallest in town, 175 feet high and will have a flue diameter of eight feet.

* * *

Mrs. John Post Reynolds, who has been in charge of a home for aged women in Fall River, Massachusetts, has been secured as matron of the new day nursery of the National India Rubber Co. soon to be opened, and is to be assisted by skilled nurses. The house purchased for the purpose is at the corner of High and Bourn streets, one block from the plant.

* * *

The Narragansett Electric Lighting Co. is installing at the factory three new transformers of 2,500 kilowatts' capacity, to replace a smaller equipment. These changes are necessitated by the enlargement of the factory and the installing of new machinery.

* * *

The Bourn Rubber Co., continuing its policy of expansion, has recently acquired considerable land with buildings thereon, located on Warren, Harrison and Westfield streets, Providence, adjoining the company's plant. As fast as possible these buildings are to be razed and new buildings of a character suitable to the needs of the company erected in their stead.

* * *

The new restaurant at the Woonsocket plant of the Woonsocket Rubber Co., is now in operation and the one at Millville, Massachusetts, will soon be ready. It is expected that some little time will elapse before the one planned at the Bristol plant will be completed.

THE RUBBER TRADE IN TRENTON.

By Our Regular Correspondent.

THE Trenton rubber manufacturers responded nobly to the Fourth Liberty Loan appeal, subscribing more than $500,000. The subscription list was somewhat larger than that made on the three previous loans. The Thermoid Rubber Co. and the Joseph Stokes Rubber Co., controlled by the same directors, headed the list. Both companies contributed $132,650, and when it was seen that the subscriptions of other manufacturers were increasing, the two concerns announced near the end of the drive that they would buy an additional $18,000 worth of the bonds. The Ajax Rubber Co. was second with $81,000, while the United & Globe Rubber Manufacturing Cos. were third with $77,350. A. M. Sawyer, of the Vulcanized Rubber Co., Morrisville, purchased $2,000 worth of bonds, and the Trenton Rubber Trade Association subscribed $1,000.

The list of subscriptions by rubber factories and individuals interested in the trade totaled $618,250. The list follows:

Thermoid Rubber Co. Joseph Stokes Rubber Co.	$150,650
Ajax Rubber Co., Inc.	81,000
United & Globe Rubber Manufacturing Cos.	77,350
Empire Rubber & Tire Co.	61,000
Acme Rubber Manufacturing Co.	55,000
Essex Rubber Co.	27,000
Home Rubber Co.	27,000

Hamilton Rubber Manufacturing Co.	25,000
Crescent Insulated Wire & Cable Co.	23,000
Delion Tire & Rubber Co.	18,750
Luzerne Rubber Co.	16,500
Whitehead Bros. Rubber Co.	16,100
Trenton scrap rubber dealers	15,000
Sanhican Rubber Co.	5,300
Mercer Rubber Co.	5,000
Woven Steel Hose & Rubber Co.	5,000
Semple Rubber Co.	3,800
Zee Zee Rubber Co	3,800
Frank Millner	1,000
Alfred Whitehead, Whitehead Bros.	1,000

Influenza and pneumonia seriously hampered the work in the Trenton rubber industry during the last month and greatly delayed important Government work. In one rubber mill alone nearly one-half the working force was laid up and several of the employes succumbed to the disease. Aside from this the rubber concerns are unable to secure enough help. Nearly all the local rubber concerns are engaged on Government work and therefore their employes will not be placed at other work as will be done in some other manufacturing establishments.

* * *

John T. Spicer, a traveling salesman in the employ of the Thermoid Rubber Co., remained off the road for the entire three weeks during the Fourth Liberty Loan drive to assist in the Liberty Loan office in the Commonwealth Building as secretary for William J. P. Stokes, chairman of the last Trenton drive.

* * *

The Essex Rubber Co. was the only concern of its kind to occupy a space at the Trenton fair. The company leased a big booth and had young women in charge, attired in bloomers, distributing cards bearing the following: "Men and women who wish to devote their energies toward the production of essentials required for the national welfare and equipment for Pershing's army, address Essex Rubber Co."

* * *

The Union Auto Tire Co., Atlantic City, New Jersey, has leased the entire Hardiman Building, 141 North Warren street, for the sale of tires. Several improvements will be made.

* * *

William J. B. Stokes, president of the Thermoid Rubber Co., who was chairman of the Fourth Liberty Loan, was so well pleased with the campaign in Trenton that he offered a $50 bond to the Boy Scout Troop selling the most bonds among boys.

* * *

John A. Lambert, treasurer and general manager of the Acme Rubber Manufacturing Co., represents the Trenton rubber industry on the Sub-Regional Committee of the Resource and Conversion Division, War Industries Board. General C. Edward Murray, former treasurer of the Empire Rubber & Tire Co., is chairman of the board.

GENERAL RUBBER CO.'S MATURING DEBENTURES PROVIDED FOR.

In order to provide the funds required to pay off the General Rubber Co.'s five per cent debentures due November 1, 1918, the United States Rubber Co., owner of the General Rubber Co., has sold to Kuhn, Loeb & Co., New York City, $6,000,000, principal amount, of its five year seven per cent secured gold notes and has agreed to provide the balance of cash required to pay the maturing debentures. The new notes will be secured by deposit with Industrial Trust Co., Providence, Rhode Island, as trustee, of $9,000,000, principal amount, of United States Rubber Co. first and refunding mortgage five per cent gold bonds, will bear interest from December 1, 1918, and mature December 1, 1923, and will be redeemable at the option of the rubber company, as a whole but not in part, on any interest payment date on or after December 1, 1920, at a premium of one per cent for each six months between the redemption date and the date of maturity, together wtih accrued interest.

ARMY AND NAVY AWARDS.

PANAMA CANAL AWARDS.

THE following awards have been made for furnishing supplies for the Panama Canal:

GASKETS, ASBESTOS.—60, $47.81, Belmont Packing & Rubber Co., Philadelphia, Pennsylvania.

VALVES.—75, $60, Empire Rubber & Tire Co., Trenton, New Jersey.

NAVAL SUPPLY AWARDS.

The following awards have been made for furnishing supplies for navy yards:

BALLOONS, RED.—$28,220.—The Miller Rubber Co., Akron, Ohio.

BUTTONS, HARD RUBBER.—4,750,000 dozen, $243,200 (part), American Hard Rubber Co., New York City.

COMBS.—$78,300, American Hard Rubber Co., Trenton, New Jersey.

FERRULES.—$17.50, Western Rubber Co., Goshen, Indiana.

GROMMETS.—$55.25, La Favorite Rubber Mfg. Co., Hawthorne, New Jersey.

HOSE, ENGINEER AND WASH DECK.—$1,560, Boston Belting Co., Boston, Massachusetts.

HOSE, GARDEN.—$187.50, Acme Rubber Manufacturing Co., Trenton, New Jersey.

HOSE, WATER.—$165, Manhattan Rubber Mfg. Co., Passaic, New Jersey.

PACKING RINGS.—$275.04, The B. F. Goodrich Co., Akron, Ohio.

PACKING, SHEET.—$4,700, Manhattan Rubber Manufacturing Co., Passaic, New Jersey.

TAPE, INSULATING.—$36,312.50, The Okonite Co., New York City.

TUBING, GUM.—$147, New Jersey Car Spring & Rubber Co., Inc., Jersey City, New Jersey.

AWARDS FOR QUARTERMASTER'S SUPPLIES.

The following awards have been made by the office of the Quartermaster General:

ARMY NURSE'S RAINCOATS.—$30,240, United States Rubber Co., Boston, Massachusetts.

RAINCOATS.—$279,000, United States Rubber Co., Boston, Massachusetts; $33,480, H. B. Gordon & Co. (Inc.), Boston, Massachusetts; $55,800, Adolph Deutsch & Co. (Inc.), New York City; $167,400, C. & E. Raincoat Co., Boston, Massachusetts; $225,200, Chicago Rubber Clothing Co., Racine, Wisconsin; $111,600, Apsley Rubber Co., Hudson, Massachusetts; $200,880, Cambridge Rubber Co., Cambridge, Massachusetts.

ARMY SIGNAL SERVICE AWARDS.

The following award has been made for furnishing supplies for the Army Signal Service:

WIRE, TWISTED, PAIR.—7,500 miles, at $113.50 per mile. The B. F. Goodrich Co., Akron, Ohio.

GENERAL ENGINEER DEPOT AWARDS

The following awards of rubber goods have been announced at the General Engineer Depot, United States Army:

HOSE, SUCTION, Two-Inch.—40,020 feet, $5,547.60, Hewitt Rubber Co., Buffalo, New York.

HOSE, SUCTION, WITH FITTINGS.—45,000 feet, $67,050, The B. F. Goodrich Co., Washington, D. C.; 5,960 feet, $23,764.44, Boston Woven Hose & Rubber Co., Boston, Massachusetts; 45,000 feet, $64,350, and 7,500 feet, $10,725, The Goodyear Tire & Rubber Co., Washington, D. C.

HOSE, WATER, WITH FITTINGS.—46,960 feet, $68,984, The Republic Rubber Co., Washington, D. C.

The Rubber Trade in Great Britain.

By Our Regular Correspondent.

RAW RUBBER.

THOSE firms who are the buyers of Hard and Soft Fine Pará are getting somewhat nervous about their supplies. It is stated that the stock in England is practically nil, and though this is probably an exaggeration, it is certain that the amount on hand is small. Purchases at the present time at the price of 3*s.* 2*d.* a pound for Hard Fine are all on the basis of delivery ex first available steamer from Pará. In these days of reduced and to some extent incompetent staffs, mistakes are of more frequent occurrence than was formerly the case and in this connection it would be interesting to hear how many orders were received by the London rubber brokers, whose list quoted Hard Fine Pará at 2*s.* 3*d.* when it obviously should have been 3*s.* 2*d.* Of late years, owing to rapidity of transport, the washing loss of Fine Pará has shown a rise of two to three per cent, owing to the retention of more moisture, and now that transit has again become slower, buyers are speculating whether they will get back to 15 per cent losses again.

The number of patents recently taken out by the General Rubber Co. of New York in connection with the treatment of raw rubber and latex, and made particularly with the idea of improving the plantation product, show the zeal with which the American rubber chemists are cultivating a new field of research—a field which has hitherto been largely monopolized by the British and Dutch. The subject matter of the patents is too extensive to be profitably referred to in a few lines, and I shall only make the remark that whereas in these patents importance appears to be attached to the retention in the rubber of nitrogenous bodies and carbohydrates, one is always reading in contemporary rubber literature of processes for purifying low-grade rubber by the removal of all bodies which are found in conjunction with the rubber hydrocarbon. If we take it as proved that the small amount of resin in high-class rubber is a good thing and the large amount in low-class rubber a bad thing, it is clear that deresination must not be carried too far. It was probably the overlooking of this point which caused the trouble which manufacturers experienced some years ago when deresinated low-grade rubber was more prominent in the market than is the case to-day.

Probably only very few rubber manufacturers rewash their plantation rubber before use, but I know of some who do this so as to be absolutely certain that no foreign matter enters into their goods. Of course, a quality such as barky crêpe has to be washed, but I have in my mind firms who religiously rewash first-quality pale-brown crêpe.

PROSPECTIVE COAL SHORTAGE.

The troubles of the trade in the past, prominent among which has been labor, seem likely to be added to by the shortage of coal. At the time of writing, the effect of this shortage has not actually been felt, but the apprehensiveness is such that quotations for price and deliveries of rubber goods are being made with a clause having reference to probable developments which the manufacturers cannot control. With regard to increase in the price of rubber goods, what has recently occurred with balata belting, now double the price of five years ago, this is bound to occur with all goods in which cotton fabric predominates, as the stock of cloth made from cheap cotton gets exhausted.

Meanwhile, despite all attendant worries, the manufacturers generally show satisfactory balance sheets. One of the latest is the Leyland & Birmingham Rubber Co., Limited, which has a profit of £77,750 ($376,310), against £63,896 ($309,256) a year ago. The dividend is 15 per cent for the third year in succession. Moreover, £10,000 ($48,400) is carried to reserve against nil in the previous year. The issued ordinary share capital of the company is £268,257 ($1,298,363), while the preferred capital issue is £50,000 ($242,000).

MANUFACTURE OF RUBBER IN NORWAY.

The paragraph in the July issue of THE INDIA RUBBER WORLD referring to the prospective enlargement of the rubber factory at Mjöndalen reminded me of a tour in Scandinavia in 1905. During my stay in Christiania, on coming from higher latitudes, I took the opportunity of visiting these works. After a journey of about thirty miles in the customary narrow-gage train drawn by two diminutive but energetic Baldwin locomotives, I arrived at the seaport of Drammen on the Christiania Fjord and managed to find my way to Mjöndalen and its factory. The correct title of the latter is Aktieselskabet den Norske Galoge & Gummivare Fabrik, Mjöndalen-Drammen. The superintendent of the works is or was at that time, G. M. Harrel, who had learned his business in America. The capital of the company was 400,000 krone ($108,000). Though some rubber boots were made, the main output was galoshes and soles for tennis shoes. Norway has always obtained much of her rubber footwear from Sweden, where there is a large factory at Helsingborg, and from Germany, though I gather that she is now to satisfy her requirements by the enlargement of the Mjöndalen factory. The Helsingborg works, which must feel the new competition, had a capital of 1,500,000 krone ($405,000), employed 600 workpeople and turned out 5,000 pair of galoshes a day. By way of completeness I give the correct title of this works—Helsingborg Gummifabriek Actiebolaget, the last half of this alarming word corresponding to the American "Inc."

SYNTHETIC RUBBER.

It is hardly surprising that what progress has been made with the synthetic rubber problem has to be reported from Germany rather than from other countries in a better position to obtain the natural product. The new factory at Leverkusen is said to be capable of producing 2,000 tons yearly, though as far as I am aware, the cost has not been made public. It is not surprising to hear that the product is more suitable for hard rubber than for soft rubber goods, as the range of materials, by no means all of the rubber class from which satisfactory hard rubber goods can be made, is now quite extensive. No progress in this direction is to be reported from the British company which was floated with a flourish of trumpets in 1912. I might, however, remind those who are apt to be severe on the company, that the Synthetic Products Co., Limited, capital £500,000, ($2,420,000), was formed, as stated in the prospectus, for manufacturing acetone and fusel oil and for making further experiments in developing synthetic rubber. At present the latter object has been apparently abandoned in favor of the former.

"CRUDE RUBBER AND COMPOUNDING INGREDIENTS."

I see that a new edition of this now well-known work by the Editor of THE INDIA RUBBER WORLD has been issued. Even if in these days when we are exhorted to save our spare cash, there may be some who, already possessing the last edition, do not buy the new one, I feel sure there must be many among the newcomers into the rubber manufacturing field who will send in their orders. That they will obtain up-to-date information, I

feel sure, and no doubt they will also be able to read, as in the earlier edition, of a variety of processes that have been tried but never achieved any useful purpose. In an industry like ours where new ideas are always being put forward, it is decidedly useful to be able to point to the fact that the vaunted novelty of today is identical with a proved failure of the past. The other day I came in contact with a certain chemical used in a more or less recent process in a rubber works and looked into a number of books to find out something about it. Rather to my surprise it was not mentioned. I then thought of the book under notice, and there I found the exact information I wanted. *A fortiori*, those who have no series of chemical works at hand cannot fail to find the book a valuable consultative medium.

RUBBER CARD CLOTH.

Makers report trade as being very good, but that owing to shortage of labor and other current difficulties, it is by no means easy to fill orders promptly. With regard to this business I remember that at the first London rubber exhibition it was stated that the card cloth manufacturers were yielding the point of using plantation rubber, and that it had been tried with success for block rubber. Although unvulcanized rubber-faced cards are expected to last as long as fourteen years, enough time has now elapsed to test the wisdom of the change from Brazilian Soft Fine and it would be interesting to have the results published. This, however, is where difficulties always seem to arise in our trade experiments and I am not hopeful of seeing anything authoritative in print. All I can say myself with certainty on the matter is, that some firms have not yet deviated from their procedure of forty years ago. With regard to the vulcanized rubber cards made by certain firms for use in woolen mills, as these have a much shorter life, I do not see why there need be the same anxiety in making a change. A considerable export trade to all cotton-spinning countries has always been a feature of the English manufacture, but this has been much interfered with by the war, and many orders in hand are remaining unfilled. This is especially the case with Russia, where a branch works was once started by a prominent English company, but was stopped after a few years. In some German works making card cloth, the fabric and steel points were brought from England and made into the completed rubber-faced card in Germany. In the early days of rubber reclaiming, the highest quality which was on the English market was known as Rowley's Amazon rubber, which consisted of the strippings of old unvulcanized card cloths. The name will not be familiar to the younger generation, though no doubt the material comes forward under some other designation.

CONTROL OF SULPHUR.

The article by Campbell Mac Culloch on the sulphur situation in America in the August issue of THE INDIA RUBBER WORLD is of great interest and deals with an important matter in a much fuller way than would be possible in our technical press under existing circumstances. After all, America has been a sulphur producer for only about ten years, and supposing the working of the deep Louisiana deposits by the Frasch process had not come about, she must have been in a very awkward position if she was still dependent upon Sicily for her supplies. It is difficult for some people to believe that a country of the size and presumed general resources of the United States can be short of mineral products, but there are many minerals in which she is greatly deficient. It appears that the pyrites deposits in America have never been worked to any extent and that any new mines cannot be brought into operation quickly enough to be of service to replace the now diminished imports of foreign pyrites. In these circumstances it certainly seems a good move to adopt the thiogen process of recovering sulphur from waste smelter gases, though the estimated cost of $10 to $13 a ton will probably be exceeded in practice. The smelter fume problem is of much greater importance in America than in any other country, and whether the recovery of the sulphur proves a commercial success or not, it may be made compulsory. In pre-war days the smelter gases were not converted into vitriol because it would have been impossible to market the prospective amount of vitriol. In other countries smelter gases are made to provide the vitriol for the adjacent manufacture of superphosphate. If the proposed government control of sulphur in America works as smoothly as the similar control here, rubber manufacturers will not have much to complain of. With characteristic optimism, our Editor discourses of the possibility of doing without sulphur in the trade, but as the bulk of the urgent work is for government purposes I think we may take it that any government specification will continue to cite sulphur and will not countenance the various alternative methods of producing an apparently vulcanized article. One trembles to think of the new female labor being put on to vulcanize rubber with nitric peroxide or chlorine.

BRITISH SCIENTIFIC PRODUCTS EXHIBITION.

THE recent British Scientific Products Exhibition held in London, says the "India Rubber Journal," had interesting exhibits in connection with aircraft, gas traction and electrical manufactures. A gasoline-resisting rubber hose that does not swell when in contact with gasoline was shown in use as connections between lengths of metallic airplane gasoline tubing. A shock-absorber cord used on the outer carriages of airplanes was also exhibited. The three standard sizes now in use on British machines are as follows:

	(1)	(2)	(3)
Diameter	1/4-inch	3/16-inch	1/8-inch
Load at double extension	220 lbs.	140 lbs.	80 lbs.
Number of double strands	266	172	95

Rubber strands in two distinct coverings of cotton braiding form the cord. Before braiding, the rubber thread can stretch 500 per cent, but to enable it to carry heavy loads it is stretched to two or three times its length and held at that tension by the braiding. The British cord carries a load of 140 pounds at double extension, while the German cord carries 40 pounds.

Balloon fabrics were also shown. The fabric for the outer envelope of British observation balloons has two layers of cotton fabric, folded diagonally in two plies, the outer one dyed green. Between the plies is a layer of rubber, the free surface of the inner ply also being rubber coated. The fabric is of Sea Island or Egyptian cotton, 2.4 ounces per square yard, 118 threads per inch in both warp and weft, and the strength is 54 pounds per square inch. The rubber coating is 3.4 ounces per square yard with a coating equal to .9 of an ounce per square yard on the inside of inner ply. Total weight of the finished fabric is 9 ounces per square yard. Underneath one end of an observation balloon is an open pocket or rudder which is composed of a single-ply fabric of similar weight, strength and color to the one above described, but the inside rubber proofing weighs 1.8 ounces per square yard while the protective coating outside weighs only .6 of an ounce per square yard. The total weight of this finished fabric is 4.8 ounces to the square yard. The material of the ballonet is like that of the envelope fabric, but lighter. The rubber proofing is the same. Weight of fabric (untreated with rubber) 1.8 ounces per square yard, 108 threads per inch (warp and weft), strength 34 pounds per inch. Total weight of complete fabric 8.1 ounces per square yard. The nurse balloon is of stouter material, having three plies of cotton fabric folded so that the warp and weft threads are parallel, the outer layer of fabric being stouter than the other two and dyed green. There are layers of rubber between the plies and on the outer surface. The total weight of rubber used is 6.6 ounces per square yard, and the complete fabric weighs 16.8 ounces per square yard.

Molded electrical insulation was on exhibit, the Hightensite Co., Limited, of London, displaying Hightensite, which has a dielectric strength withstanding a pressure of more than 20,000 volts per millimeter of thickness, is non-hygroscopic, non-inflammable, and has a wearing surface equal to brass, not carbonizing under sparking.

Another insulation was shown by Messrs. Fleming, Birkby and Goodall, of Liversedge, Yorks. It is heat and acid-proof, not brittle, and has mechanical strength, chemical inertness, and accuracy of molding. Certain grades stand heat up to 2,000 degrees F. The dielectric strength is 550 to 600 volts per millimeter. One grade is similar to amber without being brittle.

The Damard Lacquer Company, Limited, showed many forms of a material they call Formite, a soluble, fusible, amber-colored resin, soluble in alcohol, ether, acetone, fusel oil, etc., with a melting point of about 150 degrees F., which, when heated to 250 degrees F., changes polymerically into a hard, homogeneous, amber-like product, no longer soluble or fusible at any temperature, with high insulation and good tensile strength. The makers recommend Formite for heat and electrical insulation and also as a substitute for amber and ebony.

The Improved Solidite Co., Limited, of London, displayed Erinoid, a substitute for the German Galalith.

The British Rubber Manufactures, Limited, Acton, London, displayed their flexible gas container, having on each of its four sides a deep flap, the lower end of which is secured to the tray by an outside fillet. They also showed Egyptian cotton in its raw state, their material treated with five coats of rubber, the finished material with an inner surface of 12 coats of Pará rubber, and with the outside separately coated.

MISCELLANEOUS FOREIGN NOTES.

INCREASED PRICES ON SULPHUR IN BRITAIN.

THE British Ministry of Munitions announces the following revised scale of prices:

	Per Ton.
Flowers of sulphur	£28 15 0
Roll brimstone	22 10 0
Thirds	17 15 0

Export is still prohibited. Sulphur will be supplied only in lots of not less than five tons for use in approved trades and industries. A discount of 2½ per cent will be allowed to sulphur merchants and dealers known as such before the war. "Recovered" sulphur can still be procured in the ordinary way from the home producers. All applications to the sulphur committee are to be accompanied by remittance of the price in full.

MECHANICAL RUBBER GOODS FACTORY IN NORWAY.

The Norwegian rubber factory at Mjöndalen, Norway, known as the Aktieselskabet Norske Galoge & Gummivarefabrik, it has been ascertained since the publication of the note about this concern in our issue of July 1, 1918, has been forced by war conditions and the scarcity of rubber to limit its production to articles which are absolutely necessary. It is now chiefly interesting itself in experiments with rubber articles of every kind, with a view to taking up the fabrication of mechanical rubber goods as a regular line as soon as suitable materials are available.

PROPOSED CHANGES IN BRITISH PATENT AND TRADE-MARK LEGISLATION.

Practically all of the belligerent countries have taken steps toward mapping out plans and establishing administrative machinery to deal with the economic situation after the war. Great Britain has probably made more progress than any other nation. Among the numerous means being considered to meet altered business conditions, the Board of Trade has introduced two measures providing for far-reaching changes in the trade-mark and patent legislation, which are intended to eliminate some of the abuses on the part of foreign, particularly German, concerns under the existing law. The changes in the patent law include stricter application of the working clause, greater facilities for licensing, and a revocation of the patent for any abuse of patent rights, such as failure to work the patent, or to grant licenses on reasonable terms, whenever the public interest demands, or unfair conditions imposed on the use or sale of the patented article.

RUBBER IMPORTS IN AUSTRALIA AND NEW ZEALAND.

The increase in rubber goods imported from the United States into Australia from 1913 to 1917 is notable. The figures are furnished by the statistician of the Australian Government, who selects 1913 for the comparison because that year was the last in which returns were reckoned from January through December, the change to the fiscal system having been made in 1914-1915, and because that year can be taken as the latest normal pre-war year. The value of the imports in 1913 was $623,928, and in 1916-17, $2,031,822.

The comparison of Victorian imports for the first six months of 1918 and for the corresponding period of 1917 is interesting. For 1918 they were $1,398,125, and for 1917, $799,770.

The value of New Zealand's imports of rubber tires for automobiles from the United States rose from $133,163 in 1914 to $1,163,726 in 1917.

RUBBER AND RUBBER PRODUCTS FOR DENMARK.

A commercial and shipping agreement, similar to that between the United States and two other Scandinavian nations, has been concluded with Denmark. Foodstuffs, raw materials, manufactured goods and other essential commodities aggregating 352,895 metric tons annually are to be exported. Rubber and rubber products appear in the list as follows: crude rubber, 130 tons; bicycle tires, 100 tons; rubber footwear, 100 tons; machine packing, 100 tons; motor and motorcycle covers and tubes, 250 tons; other rubber manufactures, 100 tons.

SWISS TRADE-MARK OF ORIGIN.

To prepare against attempts made to pass off German goods as of Swiss origin, a national Swiss trade-mark has been instituted and a syndicate for Swiss exportation (Syndicat pour l'Exportation Swiss) has been formed. The syndicate, known as the S. P. E. S., consists of a body of 15 men, and will have its head offices at Geneva. As owner of the mark "S. P. E. S.," indicating Swiss origin, it will give its members the right to use this mark for goods produced on Swiss soil or by Swiss industry, and for goods which have undergone in Switzerland such treatment as to give them a new character. Only native-born Swiss citizens and those who have been naturalized for at least 10 years are eligible for membership.

ARTIFICIAL RUBBER IN GERMANY.

The Dye Factories Company (formerly Friedrich Bayer & Co.), of Leverkusen, is contemplating the building of large extensions in Leverkusen, for which it has already placed the contracts. One of the building contractors has already invited tenders for 30 million bricks. It is reported that artificial rubber and gum will be produced therein. The company is already extensively engaged in the production of these commodities. ("Vossische Zeitung.")

DOMINICAN REPUBLIC RUBBER GOODS IMPORTS.

During 1917 the Dominican Republic imported 84,266 kilos of rubber goods, of which 76,479 kilos came from the United States, 6,949 kilos from Porto Rico, and the rest from Cuba, the United Kingdom, France, Spain, and Japan.

Rubber Planting Notes.

DUTCH EAST INDIAN RUBBER EXPORTS.

A PHENOMENAL increase in the Javanese rubber exports to the United States for 1917 over those for 1916 is reported by United States Consul H. J. Dickinson at Batavia, Java, the reasons being the interruption of steamer service to Europe and the prohibitive freight rates to European markets. The result is that the American importer and the Dutch East Indian exporter have established direct relations of mutual benefit.

Mr. Dickinson thinks it doubtful whether Holland will ever regain the strong position she formerly held as distributer of her colonial produce to American consumers.

From Batavia the rubber exports to the United States were 33,450,281 pounds, value $18,063,325, for 1916, and they rose to 54,352,904 pounds, value $30,937,317, for 1917; from the same port jelutong exports rose from 777,148 pounds, value $29,619, for 1916, to 1,757,651 pounds, value $151,220, for 1917.

From Soerabaya the rubber exports to the United States were only, 7,224,262 pounds, value $3,886,835, for 1916, and they advanced to 14,001,766 pounds, value $8,710,336, for 1917; from the same port jelutong exports increased from 2,312,003 pounds, value $70,757, for 1916, to 6,712,178 pounds, value $310,665, for 1917. Soerabaya also sent us 574,644 pounds of gutta percha, valued at $35,158, in 1916, but this port forwarded to us 1,585,614 pounds, value $112,359, in 1917.

A NEW TAPPING METHOD.

W. van Brakel describes a new method of tapping, successfully employed by him on the Basilam Estate, Bindjei, East Coast of Sumatra. The usual system followed in this district is two cuts over a quarter, from left to right above each other. Mr. van Brakel considered that in this way the flow of latex to the upper cut was somewhat held back by the lower cut, and to prove this, the direction of the cuts was changed. The upper was placed to the left of the lower so that the latex flowed into the cup via the lower cut. Experiments carried out during three and a half months on two plots of 2,700 trees each showed an increased yield of about 12 per cent under the new system, while it was further found that the coolies could tap the same number of trees. In the rainy season, this method causes greater loss of latex, but even so it is said to be more profitable than the old one.

CUBING RUBBER PRIOR TO BALING.

A correspondent suggests in "The Malayan Tin and Rubber Journal" that rubber planters should make their smoked sheet into five-foot cubes, which would be easy to do when the sheet comes out of the smoking-room, as only few estates would have more than a few to make daily. No ribbing would be required and the name and brand of the estate could be pressed into the cube to a depth of say half an inch. More rubber could be put into a bale this way than when a dealer at a port presses sheets into a baler as he does now. Only the outside of the cube could possibly mold, the mass would be an obstacle to pilfering, and if the outside covering were torn off the "chop" of the estate would still be there.

THE CEYLON RUBBER INDUSTRY.

The Annual Report on the Blue Book for 1917 states that the area under *Hevea* rubber in Ceylon is now about 251,500 acres. Rubber is gradually displacing cinnamon in the western province in the Matara district, large areas formerly under citronella are now being planted with rubber, while in the Kalutara district even rice lands are being converted into rubber estates. The report regrets the diminished production of foodstuffs, says that the rubber is sometimes badly planted, easily becoming diseased, when it becomes a danger, and states that increased idleness and crime follow the change from rice to rubber growing, as it is far less troublesome to grow rubber than to grow "paddy." Rubber is being interplanted with tea in the low country with a view to replacing tea by rubber.

A notable increase, amounting to 15,910,700 pounds, is reported in the rubber exports of 1917 over 1916. Exports since 1912 have been as follows:

1912 ..... *pounds*	13,256,900	1915 ..... *pounds*	43,574,800
1913	22,649,100	1916	48,669,000
1914	30,672,400	1917	64,579,700

In 1917, the United States were supplied with as much rubber as the United Kingdom. Other countries supplied (in order of importance) were: France, Italy, Russia in Asia, Japan, South America, China. All exports are under license owing to the war.

BALING PLANTATION RUBBER A SUCCESS.

UNDER the stimulation of a request by The Rubber Association of America that rubber prepared in the Far East for shipment to this country be packed in such a manner as to save cargo space to the fullest possible extent, the rubber shippers in that district are rapidly adopting the methods of baling rubber which had their origin in 1915 on the plantations of the United States Rubber Co., in Sumatra. These methods of baling mark the successful conclusion of a long series of experiments to perfect a method of preparing the rubber for transport which would provide a compact, strong package to withstand the long voyage to America, and allow the crude rubber to arrive at its destination in first-class condition, as well as reducing the original cost of the containers to the lowest possible figure.

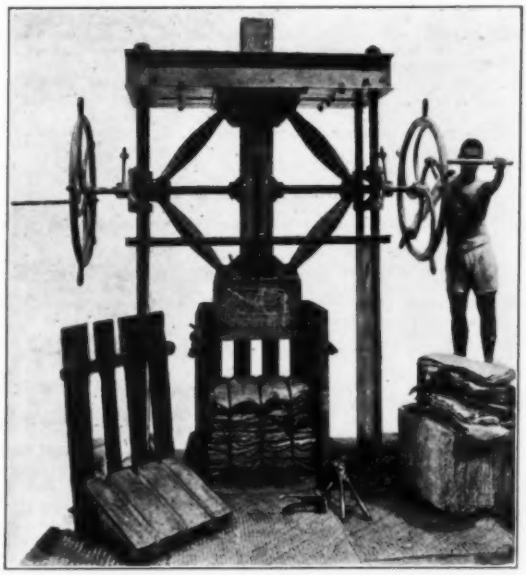
Previously, plantation rubber was as a rule shipped from the Far East in wooden cases. These were for the most part "momi" cases—wooden boxes of white wood made in Japan for the tea trade—and rough redwood cases. Their use was unsatisfactory because they were frequently broken due to a shrinkage of the wood which was often green lumber, so that dirt and splinters found their way into the rubber. An effort to strengthen the boxes by using wire and iron straps had little effect in preventing breakage during the voyage. Another difficulty connected with the use of the boxes was that it was deemed inadvisable to weight them to their full capacity because of their lack of strength.

When the late E. H. Pound went to the United States Rubber Co.'s plantations in 1914 as director of the technical department, he took out with him various kinds and sizes of bags, sacks and drills, with which he made an effort to determine the best form of package. Rubber packed in these containers arrived in New York in good condition, showing that it was not necessary to use wood as a covering. Experiments were also made with fiber coverings, but the excessive moisture caused these to deteriorate rapidly, even when well-varnished.

In February, 1915, the company began to ship rubber in gunny sacks lined with cheap cotton cloth procured from India and treated to protect against mold and decay. At this time a number of old tobacco presses found on that part of the plantations formerly used for growing tobacco, were tried out for baling rubber. When pressed, the bales were secured with strap iron which was fastened with an ordinary cotton bale fastener. These presses were of the hand variety but recently power has been applied to the presses, the number of which has been augmented by the latest and most improved type of American presses.

All rubber shipped by the United States Rubber Co. from its plantations since December, 1915, has been forwarded in bales

of this character, and the methods have been used on a large scale at the company's warehouses in Singapore since March of this year. The amount of shipping space saved by the adoption of this method is readily perceived from the statement that a package of five cubic feet now contains 180 pounds of pale crêpe as against 120 pounds under the old method, and a package of smoked sheets of similar dimensions contains 230 to 240 pounds as against 180 pounds under the old method of packing.



RUBBER-BALING PRESS AS FORMERLY OPERATED BY HAND.

THE SITUATION IN MALAYA.

By Our Regular Correspondent.

A NEW ROOT DISEASE.

WHAT with import restrictions, scarcity of ship tonnage and a continual battle with tree diseases, the rubber planter in the East is having a thorny time. To add to his troubles, a new root disease has recently been discovered by G. N. Magill, of Changkat Serdang Estate, Taiping. It will be remembered that it was Mr. Magill who also called the attention of rubber planters to the danger of brown bast.

This new disease appears to be the ordinary *Hevea* canker on the roots, which on exposure show wounds where the bark has died away, while the sapwood is discolored. The development of the disease seems to be rapid, but detection in the early stages is practically impossible unless every tree is opened up for inspection and kept so, as the canker is not noticeable until the foliage begins to wither. When the collar and roots are exposed, sores are found.

The crown does not begin to wither until the disease has reached a far-advanced stage, when there appears to be little hope of recovery. Mr. Magill says:

> The actual area of the canker wound may not be very large, but bark running out along the laterals and down the tap root becomes dead and, when gently broken, shows plainly minute dried strands of rubber, which resemble that seen in stem canker, though the coloring of the diseased bark is different.
>
> There can be at present only one treatment—excise all deceased tissue and sapwood infected, but in bad cases this almost means depriving the tree of all its support, whilst in cases where the tap root and laterals are infected there is nothing left but to destroy the tree.
>
> Paint exposed wound with solignum and when dry put on a cover of tar; have the area limed and dug over. When a case is finished spray Bordeaux mixture lavishly around and cut a deep isolation drain around the area with drains from each hole around the root to it. It is early as yet to say whether the treatment will be effective or not.

SCHOOL FOR "TREE-DRESSERS."

Now that diseases are forcing themselves so persistently on the attention of all concerned, the question of a trained understaff, or "tree-dressers" has been revived. "The Malayan Tin and Rubber Journal" suggests that the local government should seek the aid of the Agricultural School of Peradeniya, Ceylon, to undertake a short special course for a selected number of Malayan tree-dressers. A local scheme for a similar institution could then be developed gradually and meanwhile there would be a staff of tree-dressers already at work by the time their number would be reinforced by others trained in Malaya.

A correspondent of the above journal advocates a school for tree-dressers as the best memorial which planters could establish to the memory of Malcolm Cumming, a former chairman of the Malaya Planters' Association.

PLANTERS AND MAN-POWER.

The urgent need of every able-bodied man in Europe led R. C. M. Kindersley to declare at a recent meeting of the Malaya Planters' Association that the time had come when plantations ought to send many more men for military service, even to the detriment of the estates.

So far, Malayan plantations have scarcely been inconvenienced. It happens that at present there is overproduction of rubber, so that restriction of output and consequent decrease of the working force is needed. But even if this were not the case, Mr. Kindersley questions whether there is any justification for holding back Class A men because it is desired to maintain estates at their present high standard. In his opinion, half the planters could leave the country without affecting the production of rubber. He suggests that neighboring estates could arrange for joint management. Furthermore, in view of the fact that conscription will soon be introduced, it seemed to him to be highly desirable that men willing to volunteer should not be held back until they are sent for.

THE PRESENT SITUATION.

The difficult situation in which the rubber industry has been placed by the import regulations of the British and American Government is naturally causing no small amount of concern and discussion. That something must be done and done speedily is felt by every one and certain more or less vague plans have been mentioned. It has been urged that the Government should control rubber as it is controlling Egyptian cotton and Australian wool. While the rubber problem is admitted to be more complex, it is felt that the Government should nevertheless consider the matter seriously and take some kind of immediate action.

Again, it has been proposed that the Malayan Government should appoint a special commission, composed of officials, planters, rubber merchants, and rubber estate accountants, with definite instructions to sit daily until a practicable scheme to meet the present and future needs has been formulated, a scheme that could be accepted without reservation by all the rubber interests in the peninsula.

Others point out that in various countries, allied and enemy, the need for cooperation in different industries has been recognized and that there is a growing tendency toward combination. If a combination of rubber growers were formed, guided by intelligence and foresight, the future of the rubber industry might be more than secured. Meanwhile, however, there is much hazy talk and, as is known, production is increasing and prices are falling.

SOUTH INDIA RUBBER EXPORTS.

Exports of plantation rubber from South India during 1917 were 8,526,748 pounds as compared with 6,009,946 pounds in the preceding year.

Recent Patents Relating to Rubber.

THE UNITED STATES.

ISSUED AUGUST 20, 1918.

NO. 1,276,120. Airship with gas-bags. J. D. Salts, Bois d'Arc, Mo.
1,276,148. Cushion tire. J. S. Williams, Riverton, N. J.
1,276,149. Cushion tire. J. S. Williams, Riverton, N. J.
1,276,179. Repair strip for tire rim-cuts and blowouts. M. Copps, Reidsville, Ga.
1,276,184. Teat cups, etc. N. J. Daysh, Poughkeepsie, assignor to De Laval Separator Co., New York City—both in New York.
1,276,231. Anti-slip device for rubber crutch-tips. T. J. Le Cras, Toronto, Ont., Canada.
1,276,283. Windshield cleaner. H. D. Thomas, Seattle, Wash.
1,276,310. Pneumatic vehicle spring. H. P. Arndt, Amston, Conn., assignor of two-thirds to C. M. Ams, New York City. (Original application divided.)
1,276,325. Valve for pads, etc. R. S. Carling, Los Angeles, Calif.
1,276,410. Abdominal supporter. D. C. Pratt, Summit, N. J.
1,276,435. Soft-tire alarm. G. L. Stevens, Long Beach, Calif.
1,276,485. Demountable rim. W. W. Brown, Burlington, N. C.
1,276,497. Dirigible balloon. W. Culver, Sioux City, Ia., assignor of one-half to W. H. Kirchman, Wahoo, Neb.
1,276,511. Eraser guard. L. W. Faber, New York City, assignor to Eberhard Faber Pencil Co., Brooklyn—both in New York.
1,276,526. Massaging machine with rubber pads. C. B. Hardy and K. E. Gibson—both of Los Angeles, Calif.
1,276,529. Rubber-set riffle. J. Horn, Ray, Ariz.
1,276,533. Tire. S. Hummel, Fort Yates, N. D.
1,276,597. Tire rim. J. H. Wagenhorst, Akron, O., assignor to The B. F. Goodrich Co., New York City.
1,276,628. Cushion wheel. A. S. Duffies, Markesan, Wis., and F. Mead, Chicago, Ill.
1,276,631. Shirt with elastic thigh-bands. R. J. Fields, assignor of one-half to C. C. Fields—both of Baltimore, Md.
1,276,666. Ladder foot with anti-slipping tread. A. P. Lohmann, Akron, O., assignor to The B. F. Goodrich Co., New York City.

ISSUED AUGUST 27, 1918.

1,276,752. Covered hose. H. W. Goodall, Aldan, Pa.
1,276,875. Pneumatic tire. F. Colby, Tuxedo Park, N. Y.
1,276,917. Tire rim. E. W. Hofstatter, Nyack, N. Y.
1,276,985. Demountable rim. F. and N. M. Spranger—both of Detroit, Mich.
1,277,006. Wearing apparel with elastic gathering means. J. P. Weis, assignor to Metropolitan Sewing Machine Corp.—both of Nyack, N. Y. (Original application divided.)
1,277,007. Wearing apparel with elastic gathering means. J. P. Weis, assignor to Metropolitan Sewing Machine Corp.—both of Nyack, N. Y. (Original application divided.)
1,277,020. Dental disk and holder. L. A. Young, St. Louis, Mo.
1,277,021. Overshoe retainer. P. J. Young, Santa Susana, Calif.
1,277,024. Demountable rim. W. W. Allen, Washington, D. C.
1,277,027. Dating stamp with rubber cushion. W. F. Bartholomew, Brooklyn, N. Y.
1,277,064. Fountain pen with several compartments and points for each. L. L. Gugel, Louisville, Ky.
1,277,090. Collapsible tire-rim. E. C. Ludwick, assignor of one-third each to C. E. Harris and F. A. Wise—all of Basin, Wyo.
1,277,141. Hairbrush with removable rubber cushion for bristles. W. T. Sherman, Troy, assignor by mesne assignments to H. L. Hughes Co., Inc., New York City—both in New York.
1,277,142. Hairbrush with removable rubber cushion for bristles. W. T. Sherman, Troy, assignor by mesne assignments to H. L. Hughes Co., Inc., New York City—both in New York.
1,277,277. Gas-bag for dirigible airplane. J. F. Walden, Merryville, La.
1,277,330. Resilient wheel. F. J. McNulty, Lowell, Ariz.
1,277,331. Resilient wheel. F. J. McNulty, Lowell, Ariz. (Original application divided.)

ISSUED SEPTEMBER 3, 1918.

1,277,396. Cushion tire. J. Dineen, Chicago, Ill.
1,277,438. Armored rubber tire. H. J. Lomer, Detroit, Mich.
1,277,516. Tire. C. E. Williams, Akron, O.
1,277,613. Fountain and stylographic pen. W. Livsey, Wallasey, Eng.
1,277,701. Sling-shot. A. R. De Pass, Columbia, S. C.
1,277,789. Cushion tire. C. L. Van Ness, Akron, O., and F. A. Krusemark, Roanoke, Va., assignors to K., F. & C. Tire & Rubber Corp., Roanoke, Va.
1,277,831. Armored pneumatic tire. W. E. Baumberger, Sacramento, Calif.
1,277,848. Fountain pen. D. Cameron, Edinburgh, Scotland.
1,277,871. Repair patch for vehicle curtains, etc. W. C. Craft, St. Paul, Minn.
1,277,916. V. Guinzburg, assignor to I. B. Kleinert Rubber Co.—both of New York City.
1,277,953. Cushion tire. F. A. Krusemark, L. G. Funkhouser, and H. G. Carpenter, assignors to K., F. & C. Tire & Rubber Corp.—all of Roanoke, Va.
1,277,984. Resilient wheel. A. Meletti, Beverly, assignor of one-fourth to H. Walter and one-fourth to A. L. Pancoast, both of Riverside—all in New Jersey.
1,277,995. Rubber-covered roller. J. Muskett, assignor to F. Reddaway & Co., Limited—both of Pendleton, Manchester, Eng.
1,278,036. Window cleaner. F. J. Shanisey, Sr., assignor of one-third to J. Miller and one-third to J. D. Sullivan—all of Chicago, Ill.
1,278,078. Tire. B. Harris, East Akron, O.

ISSUED SEPTEMBER 10, 1918.

1,278,090. Submersible boat for an individual, with rubber leg portions, etc. W. R. Barringer, Denver, Colo., assignor to The Submersible Boat Co., a Colorado corporation.
1,278,139. Fabric shield for air-tubes of pneumatic tires. S. G. Gillespie, Charleston, W. Va.
1,278,144. Inflatable life-preserver. W. W. Haupt, assignor to C. Krutckoff —both of Chicago, Ill.
1,278,224. Split inflatable tire. F. G. Saylor, Quincy, assignor of one-fourth to G. A. Lufkin, Revere—both in Massachusetts.
1,278,249. Union garment, with elastic band. W. B. Straub, Pottsville, assignor of one-half to F. C. Yingst, Port Carbon—both in Pennsylvania.
1,278,320. Shoe tread with resilient plug. G. S. Ellithorpe, Rogers Park, Ill.
1,278,335. Girdle. E. Guggenheim, assignor to Treo Co., Inc.—both of New York City.
1,278,375. Fiber and rubber composition half-sole for boots and shoes. J. McI. Ogilvie, Toronto, Ont., Canada.
1,278,416. Resilient tire filler. A. L. Austin, Cleveland, O.
1,278,625. Heel of solid and sponge rubber. J. L. Forbes, Sturgis, S. D.
1,278,664. Pneumatic cushion for crutch-head. A. R. Hunter, Welbeck, near Worksop, Eng.

THE DOMINION OF CANADA.

ISSUED JUNE 30, 1918.

184,714. Corset with elastic vest section. S. J. Newman, New Haven, Conn., U. S. A.
184,753. Sheet rubber. The Gutta Percha and Rubber, Limited, assignee of W. Seward—both of Toronto, Ont., Canada.
184,775. Pneumatic tire. M. S. Stevenson, Westminster, London, Eng.
184,827. Life-preserving suit. A. L. Jaynes, Kansas City, Mo., U. S. A.
184,829. Dust cap for tire-valves. H. P. Kraft, Ridgewood, N. J., U. S. A.
184,850. Bottle cap with rubber ring. W. J. Nicholls, Winnipeg, Man., Canada.
185,044. Eraser. E. G. Balch, Newburyport, Mass., U. S. A.
185,054. Pneumatic tire. F. S. Bryant, Reading, Mass., U. S. A.
185,060. Tire. J. H. De Long, North Troy, N. Y., U. S. A.
185,092. Hair curler. M. J. Peppard, Minneapolis, Minn., U. S. A.
185,126. Rubber-covered finger band. M. J. MacMahon, Niagara Falls, Ont., Canada.
185,172. Vehicle wheel. E. Gasper, assignor of one-half to E. Mosser—both of Grass Valley, Calif.

THE UNITED KINGDOM.

ISSUED SEPTEMBER 4, 1918.

117,228. Rubber tire. J. C. Anderson, Cochran Hotel, Washington, D. C., U. S. A.
117,261. Teat cup. Aktiebolaget Mjolkningsmaskinen Omega, 101 Valhallavagen, Stockholm, Sweden.
117,305. Garment-supporting waistband with elastic inserts. A. Carlish, 7 Lawrence street, New Oxford street, London, England.
117,310. Artificial limb with rubber toe-piece. F. H. Critchley, 21 Great George Square, Liverpool, England.
117,343. Compressed gas container of reinforced rubber. R. C. Jagger, 98 Gainsborough avenue, Coppice, and F. Jagger, Werneth Metal Factory, Lee street, Werneth—both in Oldham, England.

ISSUED SEPTEMBER 11, 1918.

117,346. Shaving brush with rubber protector on handle. A. R. Culmer, 48 Durham Road, Holloway, London, England.
117,385. Tire. W. D. McNaull, 448 East Broadway, Toledo, O., U. S. A.
117,403. Bottle stopper. Beatson, Clark & Co., Glass Works, George street, and F. Tweeddale, 40 Albany street—both in Rotherham, England.
117,416. Heels, heel tips, soles, and sole tips made of rubber molded with canvas insertion for riveting studs thereon. F. W. Wood, 3 Raws street, Bank Parade, Burnley, Lancashire, England.
117,542. Lining for turn shoes, with elastic portion to permit turning. E. A. Gardiner, 22 Hampton Place, Brooklyn, N. Y., U. S. A.
117,547. Artificial limb with rubber blocks between leg and footpiece. H. Yearsley, 33 Clifton Road, Eccles, Lancashire, England.

Chemical Patents will be found on pages 79 and 80. Machinery Patents on page 85.

ISSUED SEPTEMBER 18, 1918.

117,678. Diver's dress. H. Houdini, 394 East 21st street, Flatbush, Brooklyn, N. Y., U. S. A.

ISSUED SEPTEMBER 25, 1918.

117,735. Twin-tire. H. Raflovich, 1301 Washington avenue, New York City.

117,740. Rubber-padded foot-keys for gas control. O. Millauro, Lambeth Infirmary, Brook street, Kennington, London.

117,773. Rubber tire and core. T. C. Watkins, 44 Warren avenue, Ingram, Pa., U. S. A.

117,778. Solid rubber tire. F. Atkinson, 89 Cornwall Road, Bayswater, London.

117,810. Valve for artificial denture dispensing with palate plate. A. C. S. Angel, Copenhagen, Denmark. (Not yet accepted.)

117,855. Waterproof clothing to substitute an umbrella. F. Hewett, 19 Ridsdale Road, Anerley, London.

ISSUED OCTOBER 2, 1918.

117,889. Artificial foot. J. J. Stubbs, City Road, Cardiff.

117,933. Boot-sole protector. G. W. Beldam, Boston Lodge, Windmill Road, Ealing, and A. U. B. Ryall, Glamorgan House, Brantford—both in Middlesex.

117,934. Exercising apparatus. A. Turio, 9 Via Orefice, Genoa, Italy.

117,966. Teats for feeding-bottles. F. R. Graham-Yooll, Dulham Towers, East Trinity Road, Leith.

117,977. Pneumatic tire. E. De Las H. Molina, 1 rue Martinez Molina, and L. B. Olcantarilla, 11 rue Ruiz Romero—both in Jaen, Spain.

117,979. Inhaler. E. C. Ingleby, Woodville, Park Villas, Old Park Road, Roundhay, Leeds.

117,995. Tire valve. Dunlop Rubber Co., 14 Regent street, Westminster, and F. J. Keegan, Dunlop Rubber Co., Alma street, Coventry.

118,022. Rubber socket for receiving ferrule for screw stopper in hot-water bottles. C. H. Moor, 249 Victoria Park Road, South Hackney, London.

118,026. Pneumatic arm-rest for crutches. E. J. Harrington, 30 Neville street, Riverside, and J. McLoughlan, 38 Adam street—both of Cardiff.

THE FRENCH REPUBLIC.

PATENTS ISSUED (WITH DATES OF APPLICATION).

487,218. (October 16, 1917.) Demountable wheel-rim. E. G. Bridd.
487,231. (October 17, 1917.) Improvements in inner tubes. A. H. Shaw.
487,327. (October 29, 1917.) Mechanical eraser. J. Combes.
487,387. (November 2, 1917.) Improvements in garters. A. J. d'Ostroph.
487,451. (November 7, 1917.) Compound to stop leaks in pneumatic tires. Puncture Cure Co., Limited.
487,518. (November 10, 1917.) Resilient wheel. F. Stitzel.
487,519. (November 10, 1917.) Exercising apparatus. A. Turio, Genoa, Italy.

AUSTRALIA.

ISSUED JULY 2, 1918, TO AN AMERICAN FIRM.

4,617. Tobacco or similar package lining of tin foil with paper backing attached by rubber compound, to protect goods from atmospheric changes. Combination Machine Co., assignee of J. Peterson, New York City, U. S. A.

ISSUED SEPTEMBER 10, 1918, TO AN AMERICAN.

5,713. Pneumatic tire tube. H. B. Wallace, Missouri, U. S. A.

NEW ZEALAND.

ISSUED SEPTEMBER 5, 1918.

39,727. Pneumatic tire. W. McEwen and W. C. S. Hosking—both of Waiuku.

40,305. Means for reinforcing fabric for insertion of valves in pneumatic tires, etc. Dunlop Rubber Co. of Australasia, Limited, 108 Flinders street, Melbourne, assignee of S. Beard, 27 Wright street, Middle Park—both in Victoria, Australia.

TRADE MARKS.

THE UNITED STATES.

NO. 94,828. The words BULL DOG followed by representation of head of a bulldog—tire tubes. W. S. Nott Co., Minneapolis, Minn.

104,845. Conventional representation of Saturn and its rings above the word SATURN—belting of fabric and rubber. The Gutta Percha & Rubber Manufacturing Co., New York City.

107,944. Representation of a stenciled impression comprising the word MAGNOLA within a diamond—rubber packing. Jenkins Rubber Co., Elizabeth, N. J.

109,646. Representation of a monkey clinging to a roll on which the word EVERGRIP appears; the whole above the words "Holding on to a Good Thing"—self-vulcanizing patches for mending tires, rubber boots, hot-water bottles, etc. The Ever Grip Co., St. Louis, Mo.

110,414. Profile representation of a soldier beneath the words THE "CADET"—fountain pens. Marshall Field & Co., Chicago, Ill.

110,426. Representation of an Indian's head—self-vulcanizing tire-patches. M. J. Cagle, San Francisco, Calif.

110,854. Representation of a bulldog looking through a tire—pneumatic tires, tubes, and outer casings of rubber or rubber and fabric. Braender Rubber & Tire Co., Rutherford, N. J.

111,286. The words RED LINE with a horizontal bar superimposed—rubber tubes, fabric and rubber reliners, and fabric and rubber patches. Red Line, Inc., Grand Rapids, Mich.

111,428. Representation of an acorn on a shield—syringes, inhalers, chloroform masks, etc. Doniger & Co., Inc., New York City.

111,628. The word RUKO—footballs, basket-balls, and volley-balls. Rawlings Manufacturing Co., St. Louis, Mo.

112,111. The words SUPER-SIX—rubber heels and soles. M. J. Feeley & Co., Boston, Mass.

THE UNITED KINGDOM.

ISSUED TO AMERICAN FIRMS.

383,175. The word RINEX—boot and shoe soles composed of rubber and fiber, rubber predominating, such soles being sold separately from boots and shoes. United States Rubber Co., 1790 Broadway, New York City, U. S. A. (Care of Haseltine, Lake & Co., 28 Southampton Buildings, London, W. C. 2.)

384,714. Representation of a winged sandaled foot—soles, heels and patches for boots and shoes, all of rubber. The Goodyear Tire & Rubber Co., 1144 East Market street, Akron, Ohio, U. S. A. (Care of Marks & Clerk, 57-58 Lincoln's Inn Fields, London, W. C. 2.)

384,716. Representation of a winged sandaled foot between the two parts of the word GOODYEAR—soles, heels and patches for boots and shoes, all of rubber. The Goodyear Tire & Rubber Co., 1144 East Market street, Akron, Ohio, U. S. A. (Care of Marks & Clerk, 57-58 Lincoln's Inn Fields, London, W. C. 2.)

AUSTRALIA.

ISSUED TO AMERICAN FIRMS.

22,198. The words RED TOP—pneumatic rubber tires for motor cars. The Fisk Rubber Co. of New York, Chicopee Falls, Mass., U. S. A.

22,212. The word KEDS—rubber, leather, and fabric footwear. United States Rubber Co., New Brunswick, N. J., and 1790 Broadway, New York City, U. S. A.

22,181. Representation of two monkeys swinging from the first and last letters of the word Moco above them—self-vulcanizing cold patch of rubber for automobile and motorcycle inner and outer tubes and casings. Moco Laboratories, Inc., 9 South Dewey street, Oklahoma City, Okla., U. S. A. (A. C. Wilshire, 219 Clarence street, Sydney.)

22,211. Representation of a kneeling monkey chopping off end of tail on jar labeled MOCO MONKEY GRIP, beside the name of the concern and beneath the words: "It's a long tale, but I'll cut it short. Moco Monkey Grip is the best."—Same as No. 22,181.

THE FRENCH REPUBLIC.

ISSUED TO AMERICAN FIRMS, WITH DATES OF APPLICATION.

25,593. (February 26, 1918.) Representation of a dress-shield bearing the words HICKS and TRADE MARK within a circle above the words MANUFACTURED BY CANFIELD RUBBER CO. PATENTED DEC. 9, 1902, U. S. A.—dress-shields. The Canfield Rubber Co., Railroad avenue and Garden street, Bridgeport, Conn., U. S. A.

25,609. (March 8, 1918.) The words PENNSYLVANIA VACUUM CUP with the letters V and C forming a monogram before and after them, arranged in a half-circle—rubber tires for vehicle wheels, and all articles made of rubber. Pennsylvania Rubber Co., Jeannette, Pa., U. S. A.

DESIGNS.

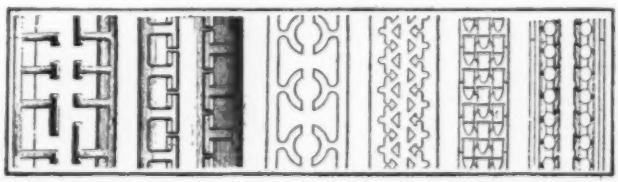
THE UNITED STATES.

NO. 52,266. Tire. Term 14 years. Patented August 20, 1918. A. L. Breitenstein, Akron, assignor to The Rubber Products Co., Barberton—both in Ohio.

52,298. Non-skid tire. Term 14 years. Patented August 27, 1918. G. F. Armstrong, Rutherford, assignor to Armstrong Rubber Co., Newark—both in New Jersey.

52,303. Tire. Term 14 years. Patented August 27, 1918. A. L. Breitenstein, Akron, assignor to A. E. Pearce and H. H. Swan, Ashtabula—both in Ohio.

52,304. Tire. Term 14 years. Patented August 27, 1918. A. L. Breitenstein, Akron, assignor to A. E. Pearce and H. H. Swan, Ashtabula—both in Ohio.



52,300 52,302 52,303 52,304 52,306 52,329

52,306. Tire. Term 3½ years. Patented August 27, 1918. G. K. Culp, Kansas City, Mo., assignor to United States Tire Co., New York City.

52,329. Tire. Term 14 years. Patented August 27, 1918. H. J. Leab, assignor to The Fisk Rubber Co.—both of Chicopee Falls, Mass.

52,352. Toy balloon. Term 7 years. Patented August 27, 1918. J. S. Sears, New York City.

A NEW ENTERPRISE IN WHICH AMERICAN, CANADIAN AND Japanese interests combine has been established in the International Co., with headquarters at Kobe, Japan. The concerns interested are Frank Waterhouse & Co., of Vancouver and Seattle, Iwai & Co., of Kobe, I. Shii, of Kobe and Senda, and Barnett & Co., of Calcutta. These concerns are shippers, importers and exporters of crude rubber, etc. C. E. Harvey has been appointed general manager of the new company.

Review of the Crude Rubber Market.

Copyright, 1918.

NEW YORK.

A REVIEW of the October market reveals but little activity, and at times, positive dullness in crude rubber of all grades. Manufacturers' orders for allocated and free rubber have been infrequent and unimportant in volume, reflecting the disturbed conditions prevailing at the mills through influenza and shortage of labor. Despite the marked inactivity, prices have been generally firm, both here and in the Far East. Government control of free rubber transactions, went into effect last month and resulted in restricting business in this commodity to some extent. Peace talk had little effect on the market other than giving added strength to the situation, both locally and at primary sources.

PLANTATIONS.—Allocated rubber, although in small demand during the month, was firm, the lowest price quoted for Latex being 37 cents and the highest 42 cents. Ribs ranged from 35½ cents to 40 cents. Free rubber prices ranged from 58½ to 62 cents for Latex and 57½ to 61 for Ribs.

PARÁS.—Prices on allocated Pará grades varied but little, the high and low being as follows: Upriver fine, 56 to 58 cents; Upriver coarse, 30 to 32 cents; Upper caucho ball, 30 to 32 cents; Cametá, 21 to 22 cents. Prices on free rubber ranged from 62 to 66 cents for Upriver fine, 35½ to 37½ cents for Upriver coarse, 35 to 36 cents for Upper caucho ball, and for Cametá, 25 to 29 cents.

CENTRALS.—All grades have been firm despite the small demand. The slight activity noticeable during the month is said to be the result of substantial orders placed by the manufacturers with dealers.

STATISTICS.—The total United States imports for September, 1918, were 5,151 tons, compared with 13,664 tons for the corresponding period in 1917. Plantation imports for September were 4,613 tons, compared with 11,192 tons last year. Imports of Pará rubber for September, 1918, were 311 tons, compared with 2,133 tons for the corresponding period in 1917. London and Liverpool imports of raw rubber for September were 3,535 tons, compared with 4,700 tons last year. Reexports for September were 892 tons compared with 1,870 tons a year ago.

NEW YORK SPOT QUOTATIONS.

Following are the New York spot quotations, one year ago, and allocation and free rubber prices on October 26. Government option prices, c. i. f. New York are given in the last column.

	Spot. Nov. 1, 1917.	Allocated. Oct. 26, 1918.	Free. Oct. 26, 1918.	Gov't. Oct. 26, 1918.
PLANTATION HEVEA—				
First latex crêpe, *Hevea first crêpe	63½@	40 @44	59 @	63
Amber crêpe No. 1	58 @	37 @	56 @	60
Amber crêpe No. 2	57 @	36 @	55 @	60
Amber crêpe No. 3	56 @	35 @	54 @	58
Amber crêpe No. 4	55 @	34 @	53 @	57
Brown crêpe, thick clean	57 @	33 @	53 @	60
Brown crêpe, thin clean	57 @	34 @	55 @	60
Brown crêpe, thin specky	55½@	29 @	44 @	50
Brown crêpe, rolled	39 @	25½@	36 @	44
Smoked sheet, ribbed standard quality, *Hevea ribbed smoked sheets	61¼@	39 @	57 @	62
Smoked sheet, plain standard quality, *Hevea plain or smooth smoked sheets	60 @	36 @	54 @	61
Unsmoked sheet, standard quality, *Hevea unsmoked sheets	57½@	30 @	50 @	60
Colombo scrap, No. 1	45 @	24 @	40 @	46
Colombo scrap, No. 2	43 @	22 @	38 @	44
BRAZILIAN PARAS—				
Upriver fine	63½@	58 @	62 @	68
Upriver medium	57½@	52 @	56 @	63
Upriver coarse	42½@	32 @	37 @	40
Upriver weak fine	52½@	42 @	@	50
Upper caucho ball	39 @	32 @	37 @	40
BRAZILIAN PARAS—				
Islands fine	49 @	46 @	@	59
Islands medium	44 @	@	@	52
Islands coarse	27 @	20 @	@	27
Cametá	27½@	21 @	@	28
Lower caucho ball	37½@	28 @	@	36
Peruvian fine	56 @	@	@	67
Tapajos fine	57 @	54 @	@	60
AFRICANS—				
Niger flake, prime	28½@	20 @23	28 @	28
Benguela, extra No. 1, 28%	32 @	@	@	33
Benguela, No. 2, 32½%	30 @	@	@	29
Congo prime, black upper	55 @	@	@	48
Congo prime, red upper	55 @	@	@	48
Rio Nunez ball	58 @	@	@	55
Rio Nunez sheets and strings	58 @	@	@	
Conakry niggers	58 @	@	@	55
Massai sheets and strings	58 @	@	@	55
CENTRALS—				
Corinto scrap	39½@	34½@	38 @	39
Esmeralda sausage	39 @	34½@	38 @	39
Central scrap	38½@	34½@	38 @	39
Central scrap and strip, 75 per cent	36½@	31 @	36½@	
Central wet sheet, 25 per cent	27 @	25 @	27 @	
Guayule, 20% guarantee	28 @	Not allocated	@	48
Guayule, dry	@	Not allocated	35 @	48
MANICOBAS—				
Ceara negro heads	42½@	@	@	37
Ceara scrap	24 @	@	@	37
Manicoba (basis 30% loss washing and drying)	40 @41	@	@	36½
Mangabeira thin sheet	35 @38	@	@	35
EAST INDIAN—				
Assam crêpe	59 @	@	@	58
Assam onions	54 @	@	@	54
Penang block scrap	36 @	@	@	37
BALATA—				
Block, Ciudad Bolivar	70 @	65 @	71 @	71
Colombia	51 @	50 @51	60 @	61
Panama	51 @	47 @48	58 @	59
Surinam sheet	79 @	82 @	95 @	95
amber	@	85 @	97 @	97
PONTIANAK—				
Banjermassin	12 @	@	@	15
Palembang	@	@	@	16
Pressed block	18 @	@	@	25
Sarawak	@	@	@	14
GUTTA PERCHA—				
Gutta Siak	18 @	24 @	28 @	28
Red Macassar	2.00 @	@	@	3.00

*Rubber Association of America nomenclature.

RECLAIMED RUBBER.

The interest in reclaimed rubber during the last month has been of a routine nature. Rubber manufacturers have experienced unusual difficulties in plant operation on account of the scarcity of labor and the inroads of influenza. Business in reclaims is therefore expected to be more or less quiet until the prevailing conditions change for the better. Prices are practically unchanged.

NEW YORK QUOTATIONS.

OCTOBER 25, 1918.

Subject to change without notice.

Standard reclaims:			
Floating	lb.	.35 @	.40
Friction	lb.	.35 @	.40
Mechanical	lb.	.12 @	.13
Red	lb.	.20 @	.25
Shoe	lb.	.15 @	.15½
Tire, auto	lb.	.18 @	.18½
truck	lb.	.13 @	.13½
White	lb.	.24 @	.25

THE MARKET FOR COMMERCIAL PAPER.

In regard to the financial situation, Albert B. Beers, broker in crude rubber and commercial paper, No. 68 William street, New York, advises as follows:

During October the demand for commercial paper has been light, due largely to the drive for the Fourth Liberty Loan, but out-of-town banks have been buying moderately, the best rubber names going at 6¼ to 6¾ per cent and those not so well known 6¾ to 7 per cent. Now that the loan drive is out of the way, the general demand for commercial paper should improve, but rates are likely to continue fairly high for the present.

COMPARATIVE HIGH AND LOW RUBBER PRICES.

	October.		
	1918.	1917.	1916.
Plantations:	Allocated and Free.		
First latex crêpe	$0.62@0.37	$0.65 @$.62½	
Smoked sheet ribbed	.61@ .35	.64 @ .61	
Parás:			
Upriver, fine	.66@ .56	.66½@ .63½	$0.80@0.71
Upriver, coarse	.36@ .30	.46 @ .42½	.46@ .42
Islands, fine	.59@ .44	.55 @ .50	.71@ .60
Islands, coarse	.28@ .20	.29 @ .27	.33@ .29
Cametá	.29@ .21	.30 @ .28	.35@ .31

WEEKLY RUBBER REPORT.

GUTHRIE & CO., LIMITED, Singapore, report [September 12, 1918]:

The weekly rubber auction held yesterday and to-day saw a much improved demand and a welcome rise in prices. Fine ribbed smoked sheet sold up to 55½ cents per pound (8½ cents above last week's best), but the bidding for this grade was somewhat erratic, only a very few lots having fetched more than 54 cents. The demand for sheet eased off in the latter part of the sale, and the highest paid in the concluding stage was 52½ cents. Fine pale crêpe was in good demand throughout, up to 55 cents, which shows an increase of 7½ cents on the week. Lower grades were well competed for, at an advance averaging four to five cents. Small quantities of plain smoked and unsmoked sheet found buyers at fairly good prices. Some 676 tons were sold, out of 867 tons cataloged.

The following was the course of values:

	In Singapore, per Pound.[1]	Sterling Equivalent per Pound in London.
Sheet, fine ribbed smoked	48c @ 55½c	1/ 6¼ @ 1/ 8¾
Sheet, good ribbed smoked	38 @ 47½	1/ 3¾ @ 1/ 6⅜
Sheet, plain smoked	37 @ 40	1/ 3½ @ 1/ 4¼
Sheet, ribbed unsmoked	31½ @ 40	1/ 1¾ @ 1/ 4¼
Sheet, plain unsmoked	27 @	1/ ¾ @
Crêpe, fine pale	52 @ 55	1/ 7¾ @ 1/ 8½
Crêpe, good pale	38 @ 50	1/ 3¼ @ 1/ 7⅛
Crêpe, fine brown	34 @ 39	1/ 2¾ @ 1/ 4
Crêpe, good brown	26½ @ 33½	1/ 0½ @ 1/ 2½
Crêpe, dark	20 @ 28½	/10¾ @ 1/ 1
Crêpe, bark	12½ @ 23	/ 8½ @ /11½
Scrap, virgin and pressed	12 @ 21½	/ 8¼ @ /11¼
Scrap, loose	18½ @	/10¼ @

[1]Quoted in S. S. currency.

MONTHLY IMPORTATIONS OF CRUDE RUBBER INTO THE UNITED STATES.

1918.	Planta-tions.	Paras.	Afri-cans.	Cen-trals.	Guay-ule.	Manicoba and Matto Grosso.	Totals for 1918.	Totals for 1917.
January ...*tons*	15,201	710	...	140	33	...	16,084	12,788
February	9,715	3,108	68	79	120	18	13,108	10,162
March	14,999	1,699	52	122	287	2	17,161	18,624
April	12,703	481	58	37	129	17	13,425	13,000
May	13,783	2,019	174	189	123	...	16,288	18,411
June	21,787	2,146	10	12	60	109	24,124	15,096
July	13,657	2,260	28	88	59	...	16,092	13,416
August	8,473	1,744	61	32	111	...	10,421	17,290
September	4,613	311	124	29	74	...	5,151	13,664

(From figures compiled by The Rubber Association of America, Inc.)

CRUDE RUBBER ARRIVALS AT THE PORT OF NEW YORK.

In compliance with the Government's request, dates and names of vesses have been deleted in the following statistics:

[The Figures Indicate Weight in Pounds.]

PARAS.

	Fine.	Medium.	Coarse.	Caucho.	Cameta.	Totals.
AUGUST —. By the ——, from Manaos.						
Hagemeyer & Brunn	67,200	.....	.....	.....	.....	= 67,200
SEPTEMBER —. By the ——, from Para and Manaos.						
H. A. Astlett & Co	106,000	22,500	.....	.....	.....	=128,500
Hagemeyer & Brunn	.....	.....	44,800	44,800	.....	= 89,600
OCTOBER —. By the ——, from Para and Manaos.						
Meyer & Brown	112,000	.....	.....	67,200	.....	=179,200
OCTOBER —. By the ——, from Manaos.						
Hagemeyer & Brunn	44,800	.....	44,800	56,000	.....	=145,600

ARRIVALS AT THE PORT OF NEW YORK.

TO NEW YORK.

AFRICANS.

	Pounds.
SEPTEMBER —. By the ——, from the Far East:	
Fred. Stern & Co.	26,880
SEPTEMBER —. By the ——, from the Far East:	
Fred. Stern & Co.	33,600
SEPTEMBER —. By the ——, from Africa:	
Fred. Stern & Co.	11,200
OCTOBER —. By the ——, from Africa:	
Fred. Stern & Co. (Via New Orleans.)	492,800
OCTOBER —. By the ——, from the Far East:	
Fred. Stern & Co.	89,600

GUAYULE.

SEPTEMBER 23. By the ——, from Eagle Pass:	
Continental-Mexican Rubber Co.	190,750

CRUDE RUBBER ARRIVALS AT PACIFIC COAST, AS REPORTED.

PLANTATIONS.

	Pounds.
OCTOBER —. By the ——, from Singapore:	
Meyer and Brown	134,400
OCTOBER —. By the ——, from Singapore:	
Meyer and Brown	145,600
OCTOBER —. By the ——, from Singapore:	
Meyer and Brown	560,000
By the ——:	
Rubber Trading Co.	108,000
By the ——:	
Rubber Trading Co.	56,000
By the ——:	
Rubber Trading Co.	15,680
By the ——:	
Rubber Trading Co.	60,480
By the ——:	
Rubber Trading Co.	42,560
By the ——:	
Rubber Trading Co.	125,440
By the ——:	
Rubber Trading Co.	89,600

CRUDE RUBBER ARRIVALS AT PACIFIC COAST AS STATED BY SHIP'S MANIFESTS.[1]

SEATTLE AND TACOMA.

PLANTATIONS.

[Figured 135 pounds net to the case and 150 pounds net to the bale.]

TO AKRON, OHIO.

		Pounds.
OCTOBER —. By the —— from Yokohama:		
The B. F. Goodrich Co.	1,202,750	
Swinehart Tire & Rubber Co.	20,250	1,323,000

TO NEW YORK.

		Pounds.
SEPTEMBER —. By the —— from Singapore:		
Charles T. Wilson Co., Inc.	47,175	
OCTOBER —. By the —— from Kobe:		
Aldens' Successors, Limited	9,045	
OCTOBER —. Transshipped by the —— from Singapore via Kobe:		
Aldens' Successors, Limited	3,240	
OCTOBER —. By the —— from Singapore:		
F. R. Henderson & Co.	12,015	
Robinson & Co.	209,925	
Poel & Kelly	195,115	
Smith & Schipper	130,410	
East Asiatic Co.	219,240	
Meyer & Brown	365,250	
United States Rubber Co.	2,206,850	
Fred. Stern & Co.	16,200	
Charles T. Wilson Co., Inc.	163,410	
Rubber Trading Co.	58,590	
L. Littlejohn & Co.	74,655	
International Trading Co.	55,790	
Various	48,465	3,755,915

TO SEATTLE, WASH.

SEPTEMBER —. By the —— from Singapore:		
Fred. Stern & Co.	9,045	
J. T. Johnstone & Co.	359,505	368,550
OCTOBER —. Transshipped by the —— from Singapore via Kobe:		
Various		37,935
OCTOBER —. By the —— from Kobe, via Vancouver:		
The B. F. Goodrich Co.	96,930	
[2]J. T. Johnstone & Co.	135,935	
Various	117,990	350,855

[2]42 cases short in dispute.

OCTOBER —. By the —— from Yokohama:		
Poel & Kelly	29,700	
Goodyear Tire & Rubber Co.	319,890	
Robinson & Co.	3,105	
East Asiatic Co.	100,440	
Charles T. Wilson & Co., Inc.	101,415	
Fred. Stern & Co.	30,075	
J. T. Johnstone & Co.	241,865	
Mitsui & Co., Limited	119,880	
Paterson, Simons & Co.	467,760	
Indo Malay Co., Limited	18,750	
Various	50,490	1,483,370

TO TACOMA, WASH.

OCTOBER —. Transshipped by the —— from Colombo via Kobe:		
Poel & Kelly	71,955	
Edward Maurer Co., Inc.	111,375	182,330

TO TORONTO, ONTARIO.

OCTOBER —. By the —— from Yokohama:		
Peerless Rubber Co.		10,125

TO WATERTOWN, MASS.

OCTOBER —. By the —— from Singapore:		
Hood Rubber Co.		154,220

TO SEATTLE.

GUTTA.

	Pounds.
OCTOBER —. Transshipped by the —— from Yokohama:	
British Bank of South America (gutta percha)	3,105

SAN FRANCISCO.

PLANTATIONS.

[Figured 135 pounds net to the case and 150 pounds net to the bale.]

		Pounds.
SEPTEMBER —. By the —— from Batavia:		
J. T. Johnstone & Co.	40,635	
Hannevig Co.	37,665	
Fred. Stern & Co.	16,875	
Winter, Son & Co.	540	
Harrisons & Crossfield	135	
The Rubber Association of America, Inc.	799,185	
Mitsui & Co.	1,215	
William H. Stiles	7,560	
E. Boissevain Co.	106,415	
General Rubber Co.	9,415	
E. Maurer & Co., Inc.	135	299,775
SEPTEMBER —. By the —— from Hong Kong:		
Aldens' Successors, Limited	59,670	
Goodyear Tire & Rubber Co.	34,505	
Edward Maurer Co., Inc.	28,080	
Poel & Kelly	5,535	127,790
OCTOBER —. By the —— from Hong Kong:		
The B. F. Goodrich Co.	195,450	
[3]F. R. Henderson & Co.	67,095	
Meyer & Brown	117,480	380,025

[3]Two cases shortshipped.

OCTOBER —. By the —— from Batavia:		
F. R. Henderson & Co.	92,340	
Fred. Stern & Co.	95,100	187,440

[1]Footnote—The figures under this head and under Crude Rubber Arrivals at Pacific Coast as Reported, have been obtained from different sources; repetitions may, therefore, occur.

CUSTOM HOUSE STATISTICS.

PORT OF CLEVELAND, OHIO.—SEPTEMBER, 1918.
No imports or exports.

PORT OF NEW ORLEANS, LA.—SEPTEMBER, 1918.
No imports or exports.

PORTS OF SEATTLE AND TACOMA, WASH.—JULY, 1918.

IMPORTS:	Pounds.	Value.
India rubber	17,679,797	$7,814,173
Gutta percha	224,120	73,846
Jelutong	61,845	3,711
Manufactures of india rubber	.....	548
Totals	17,965,762	$892,278

EXPORTS:	POUNDS.	VALUE.
India rubber boots—*pairs*...	105	$421
India rubber shoes—*pairs*..	1,102	1,326
Automobile tires	.....	5,490
Other rubber tires.....	.....	515
Belting, hose, etc.....	.....	5,863
Druggists, rubber sundries..	.....	126
All other manufactures of india rubber	.....	8,202
Total	.....	$21,963

PORT OF DISTRICT OF MICHIGAN, JULY, 1918.

IMPORTS:	POUNDS	VALUE.
Rubber scrap	30,000	$330
Manufactures of india rubber	.....	2,324
Totals	30,000	$2,654
EXPORTS:	POUNDS.	VALUE.
Rubber scrap	47,240	$2,653
India rubber boots—*pairs*...	3,696	12,087
India rubber shoes—*pairs*...	888	1,070
Automobile tires	.....	61,743
Other rubber tires.....	.....	283
Belting, hose, etc.....	.....	5,177
Druggist's rubber sundries..	.....	2,432
All other manufactures of india rubber	.....	12,813
Total	.....	$98,258

RUBBER STATISTICS FOR THE DOMINION OF CANADA.

The import and export figures by countries usually published in this table are withheld by the Canadian Government.

IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

	June, 1918.	
UNMANUFACTURED—*free:*	POUNDS.	VALUE.
Rubber and gutta percha, crude caoutchouc or india rubber	1,976,389	$942,932
Rubber recovered	172,166	31,453
Hard rubber in sheets and rods	2,605	2,053
Rubber substitute	107,419	11,182
Rubber powdered, and rubber or gutta percha waste.....	341,621	28,192
Rubber thread, not covered..	3,795	5,521
Chicle	166,574	106,818
MANUFACTURED—*dutiable:*		
Boots and shoes.....	.....	$11,979
Belting	.....	17,335
Waterproof clothing	.....	11,611
Hose lined with rubber.....	.....	17,513
Mats and matting.....	.....	734
Packing	.....	10,582
Tires of rubber for vehicles of all kinds	.....	149,592
Rubber cement and all manufactures of india rubber and gutta percha—n. o. p.	.....	121,493
Hard rubber, unfinished, in tubes, for fountain pens...	.....	536
Fillets of cotton and rubber, not over seven inches wide, for card clothing.....	.....	141
Webbing, over one inch wide	.....	19,946

EXPORTS OF DOMESTIC AND FOREIGN RUBBER GOODS.

	June, 1918.	
MANUFACTURED—	Produce of Canada. VALUE.	Reexports of Foreign Goods. VALUE.
Belting	$232	.....
Hose	13,175	.....
Boots and Shoes.....	76,653	.....
Waterproof clothing	201	.....
Tires	37,759	$331
Waste	1,604	.....
All other—n. o. p.....	5,774	15,983
Chicle	145,769	.....

LONDON AND LIVERPOOL RUBBER STATISTICS.

The import and export figures by countries usually published in this table are withheld by the British Government.

IMPORTS.

	August, 1918.	
UNMANUFACTURED—	POUNDS.	£.
Crude rubber:		
At—		
London	2,346,800	275,992
Liverpool	2,965,100	270,709
Totals	5,311,900	546,701
Waste and reclaimed rubber:		
At—		
London	1,000	7

EXPORTS.

	August, 1918.	
MANUFACTURED—	POUNDS.	£.
Waste and reclaimed rubber:		
From—		
London	342,100	7,438
Liverpool	293,700	12,033
Totals	635,800	19,471

REEXPORTS.

Crude rubber:		
From—		
London	2,239,700	240,898
Liverpool	315,600	32,380
Totals	2,555,300	273,278
Waste and reclaimed rubber:		
London and Liverpool.....	.....	.....

UNITED KINGDOM RUBBER STATISTICS.

The import and export figures by countries usually published in this table are withheld by the British Government.

IMPORTS.

	August, 1918.	
UNMANUFACTURED—	POUNDS.	£.
Crude rubber	5,191,500	582,873
Waste and reclaimed rubber	1,000	23
Gutta percha	680,200	103,699
Totals	5,872,700	686,595
MANUFACTURED—		
Boots and shoes...*doz. pairs*	7,420	15,339
Automobile tires and tubes..	.....	14,568
Bicycle tires and tubes.....	.....	926
Total	.....	30,833

EXPORTS.

	August, 1918.	
UNMANUFACTURED—	POUNDS.	£.
Waste and reclaimed rubber	720,200	21,158
MANUFACTURED—		
Waterproof clothing	.....	29,031
Boots and shoes...*doz. pairs*	5,417	6,987
Insulated wire	.....	8,654
Carriage tires and tubes....	.....	9,827
Automobile tires and tubes.	.....	58,221
Bicycle tires and tubes.....	.....	13,470
Other manufactures of india rubber	.....	118,951
Total	.....	245,141

EXPORTS—FOREIGN AND COLONIAL.

	August, 1918.	
UNMANUFACTURED—	POUNDS.	£.
Crude rubber	2,608,000	281,162
Gutta percha	900	223
Totals	2,608,900	281,385
MANUFACTURED—		
Boots and shoes..*doz. pairs*	1	12
Automobile tires and tubes.	.....	5,978
Bicycle tires and tubes....	.....	4,535
Total	.....	10,525

RUBBER STATISTICS FOR THE UNITED STATES.

IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

	July, 1918.	
UNMANUFACTURED—*free:*	POUNDS.	VALUE.
India rubber:		
From—		
France	352,811	$236,921
Netherlands	319,703	274,454
Portugal	1,180,590	533,455
United Kingdom	38,811,201	28,985,572
Canada	20	12
Central America	846,528	397,544
Mexico	2,073,575	851,422
Brazil	33,218,578	16,840,235
Peru	1,894,069	974,136
Other South America...	1,522,409	772,605
British East Indies.....	70,878,310	46,145,882
Dutch East Indies.....	14,656,376	8,714,924
Other countries	299,357	125,481
Totals	193,053,327	$104,862,643

	July, 1918.	
UNMANUFACTURED—*free:*	POUNDS.	VALUE.
Balata	180,513	109,949
Jelutong .....*free*	846,660	74,090
Gutta percha	246,755	82,644
Totals	1,273,928	$266,683
Rubber scrap	692,262	49,841
MANUFACTURED—*dutiable:*		
India rubber and gutta percha	.....	36,106
India rubber substitutes...	178,771	32,668

EXPORTS OF DOMESTIC MERCHANDISE.

	July, 1918.	
MANUFACTURED—	POUNDS.	VALUE.
Automobile tires:		
To—		
France	.....	$68,000
United Kingdom	.....	36,032
Canada	.....	38,086
Mexico	.....	78,033
Cuba	.....	161,952
Argentina	.....	174,177
Brazil	.....	20,556
Chile	.....	48,344
British India	.....	47,879
Dutch East Indies.....	.....	85,619
Australia	.....	152,424
New Zealand	.....	43,773
Philippine Islands	.....	51,735
Other countries	.....	210,974
Total	.....	$1,217,566
All other tires	.....	54,815
Scrap and old rubber.....	296,346	24,062
Reclaimed rubber	125,358	22,832
Belting, hose and packing.	.....	343,887
Rubber boots .....*pairs*	8,327	26,470
Rubber shoes .....*pairs*	62,717	56,304
Druggists' sundries	.....	53,670
All other manufactures of india rubber	.....	490,652
Total, manufactured..	.....	$1,072,692
Fountain pens *number*	7,483	6,424

EXPORTS OF FOREIGN MERCHANDISE.

	July, 1918.	
UNMANUFACTURED—	POUNDS.	VALUE.
Balata	61,857	$43,530
India rubber	352,263	195,636
Total, unmanufactured	414,120	$239,166
Rubber scrap	777	23
MANUFACTURED—		
India rubber	.....	$521
Substitutes, elasticons, etc.	.....	9,463
Total	.....	$9,984

EXPORTS OF RUBBER GOODS TO NON-CONTIGUOUS TERRITORIES OF THE UNITED STATES.

	July, 1918.	
MANUFACTURED—	QUANTITY.	VALUE.
To—		
Alaska:		
Belting hose and packing	.....	$1,961
Boots and shoes...*pairs*	1,124	4,223
Other rubber goods.....	.....	1,706
Total	.....	$7,890
To—		
Hawaii:		
Belting, hose and packing	.....	$948
Automobile tires	.....	12,343
Other tires	.....	36
Other rubber goods.....	.....	264
Total	.....	$13,591
To—		
Philippine Islands:		
Belting, hose and packing	.....	$30,685
Boots and shoes....*pairs*	534	724
Tires	.....	53,248
Other rubber goods.....	.....	11,015
Total	.....	$95,672
To—		
Porto Rico:		
Belting, hose and packing	.....	$4,393
Automobile tires	.....	74,931
Other tires	.....	1,325
Other rubber goods.....	.....	9,178
Total	.....	$89,827

Official India Rubber Statistics for the United States.

For the Fiscal Years 1916-17-18 *and June* 1917-18.

IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

	June.				Twelve Months Ended June 30.					
	1917.		1918.		1916.		1917.		1918.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
UNMANUFACTURED—*free:*										
India rubber:										
From—										
France	.....	.....	.....	.....	509,675	$312,144	616,772	$300,052	508,017	$225,803
Netherlands	.....	.....	.....	.....	479,382	364,366	102,726	69,522	.....	.....
Portugal	401,320	$121,344	230,447	$73,770	2,773,656	1,094,841	3,719,703	1,439,498	538,076	220,133
United Kingdom	10,719,733	7,733,062	1,521,740	824,645	72,459,408	48,144,416	78,742,217	51,851,269	21,926,945	12,793,606
Central America	156,211	71,310	22,990	7,865	1,313,454	597,827	1,347,931	610,911	736,014	287,247
Mexico	124,799	53,490	182,109	67,071	3,261,507	1,262,291	1,488,636	611,209	1,033,087	451,915
Brazil	9,410,413	3,606,244	4,826,422	1,684,585	54,968,227	25,150,493	56,818,966	25,654,924	41,277,914	14,307,158
Peru	47,704	25,723	.....	.....	3,476,294	1,702,581	2,516,729	1,227,776	3,565,094	1,471,823
Other South America	138,375	64,021	55,686	25,965	2,677,168	1,190,296	3,756,777	1,667,133	3,182,605	1,299,351
British East Indies	14,641,756	8,996,709	25,055,644	11,543,605	105,240,104	63,487,149	136,404,368	76,993,051	258,245,724	138,324,996
Dutch East Indies	11,539,504	7,505,367	1,531,289	741,924	20,291,963	11,605,793	45,027,410	27,239,501	53,663,857	30,504,525
Other countries	884,471	499,907	251,120	108,630	324,719	132,593	2,831,476	1,663,828	4,921,682	2,913,835
Totals	48,064,286	$28,677,177	33,677,447	$15,078,060	267,775,557	$155,044,790	333,373,711	$189,328,674	389,599,015	$202,800,392
Balata	361,371	193,795	102,683	54,136	2,544,405	996,102	3,287,445	1,649,452	2,449,881	1,278,610
Guayule	412,341	123,136	.....	.....	2,816,068	880,813	2,854,372	764,484	4,307,539	1,341,095
Jelutong (Pontianak)	.....	.....	409,946	29,403	27,858,335	1,322,262	.....	.....	7,481,292*	474,366*
Jelutong (Pontianak)..*lbs. dut.*	4,837,212	205,883	.....	.....	.....	.....	23,376,389	1,044,022	9,994,571†	501,450†
Gutta percha .....*lbs. free*	24,549	5,127	.....	.....	3,188,449	342,226	2,021,794	332,223	1,151,312	147,323
Totals	53,699,759	$29,205,118	34,190,076	$15,161,599	304,182,814	$158,586,193	364,913,711	$193,318,655	414,983,610	$206,543,236
Rubber scrap	3,577,470	301,326	734,714	53,711	16,371,573	1,271,903	20,517,328	1,569,448	13,980,303	1,019,222
Totals, unmanufactured	57,277,229	$29,506,444	34,924,790	$15,215,310	320,554,387	$159,858,096	385,431,039	$194,888,103	428,963,913	$207,562,458
MANUFACTURED—*dutiable:*										
India rubber and gutta percha	.....	$63,013	.....	$58,861	.....	$455,895	.....	$782,929	.....	$616,741
India rubber substitutes	.....	5,641	.....	24,074	.....	16,179	.....	39,815	.....	136,438
Totals, manufactured	.....	$68,654	.....	$82,935	.....	$472,074	.....	$822,744	.....	$753,179

EXPORTS OF DOMESTIC MERCHANDISE.

MANUFACTURED—										
Automobile tires:										
To—										
France	.....	$74,992	.....	$104,028	.....	$80,423	.....	$425,132	.....	$661,648
Russia in Europe	.....	.....	.....	.....	.....	1,125,733	.....	143,916	.....	94,264
United Kingdom	.....	318,865	.....	18,512	.....	9,293,482	.....	2,636,654	.....	618,071
Canada	.....	319,357	.....	334,677	.....	1,176,836	.....	1,485,939	.....	1,766,518
Mexico	.....	47,095	.....	84,348	.....	236,811	.....	257,413	.....	777,984
Cuba	.....	112,985	.....	108,500	.....	547,410	.....	1,019,915	.....	1,336,233
Argentina	.....	88,994	.....	292,753	.....	488,329	.....	1,301,344	.....	1,650,340
Brazil	.....	95,357	.....	88,480	.....	295,479	.....	696,876	.....	455,102
British India	.....	1,835	.....	12,074	.....	119,242	.....	145,820	.....	416,411
Dutch East Indies	.....	21,407	.....	550	.....	201,287	.....	415,742	.....	347,912
Australia	.....	60,480	.....	199,324	.....	1,551,154	.....	783,209	.....	819,755
New Zealand	.....	51,180	.....	101,972	.....	944,008	.....	689,705	.....	946,804
Philippine Islands	.....	18,505	.....	60,290	.....	391,634	.....	345,702	.....	863,727
British South Africa	.....	13,548	.....	72,529	.....	291,318	.....	391,211	.....	693,065
Other countries	.....	238,899	.....	413,828	.....	1,193,081	.....	1,591,623	.....	2,529,837
Totals	.....	$1,463,499	.....	$1,891,865	.....	$17,936,227	.....	$12,330,201	.....	$13,977,671
Scrap and old.....*lbs.*	198,683	$30,270	373,789	$31,933	3,904,715	$400,148	3,696,661	$415,526	2,117,257	$235,811
Reclaimed .....*lbs.*	325,956	54,470	350,462	63,943	6,406,946	871,262	4,938,991	814,199	3,284,958	567,278
Belting, hose and packing	.....	409,841	.....	404,873	.....	2,986,953	.....	3,532,384	.....	4,578,396
Rubber boots .....*pairs*	19,573	53,178	14,949	57,370	720,130	1,619,260	600,455	1,483,379	1,559,598	4,861,213
Rubber shoes .....*pairs*	174,867	122,195	83,207	72,357	1,976,896	1,046,102	3,356,484	1,716,225	1,244,170	913,128
Insulated wire and cables	.....	633,235	.....	340,138	.....	3,157,239	.....	7,192,204	.....	5,716,275
Druggists' rubber sundries	.....	.....	.....	82,251	.....	.....	.....	.....	.....	884,245
All other tires	.....	158,581	.....	89,240	.....	3,003,077	.....	2,547,652	.....	1,130,623
Other rubber manufactures	.....	725,527	.....	498,696	.....	7,290,345	.....	8,265,509	.....	6,194,816
Totals, manufactured	.....	$3,650,796	.....	$3,532,666	.....	$38,310,613	.....	$38,297,279	.....	$39,059,456

EXPORTS OF FOREIGN MERCHANDISE.

UNMANUFACTURED—										
Balata	.....	.....	.....	.....	667,168	$245,329	879,765	$474,538	473,915	$303,338
Guayule	.....	.....	.....	.....	18,500	7,770	.....	.....	17,723	5,231
Jelutong (Pontianak)	.....	.....	69,440	$9,228	58,773	2,825	.....	.....	72,255	9,619
Gutta percha	.....	.....	.....	.....	60,023	11,446	763	558	202,646	47,211
India rubber	484,092	$311,967	643,181	311,319	4,662,889	2,661,301	12,355,898	7,304,820	8,208,280	4,274,543
Rubber scrap	.....	.....	.....	.....	9,204	734	1,626	215	74,497	16,965
Totals, unmanufactured	.....	$311,967	.....	$320,547	5,476,557	$2,929,405	.....	$7,780,131	.....	$4,656,907
MANUFACTURED—										
Gutta percha	.....	.....	.....	.....	.....	$537	.....	$421	.....	$18,216
India rubber	.....	$2,309	.....	$699	.....	38,649	.....	10,905	.....	13,563
Totals, manufactured	.....	$2,309	.....	$699	.....	$39,186	.....	$11,326	.....	$31,779
Substitutes, elasticon and similar	.....	.....	.....	.....	.....	.....	.....	$1,728	.....	$11,098

EXPORTS OF RUBBER GOODS TO NON-CONTIGUOUS TERRITORIES OF THE UNITED STATES.

MANUFACTURED—										
To Alaska—										
Belting, hose and packing	.....	$22,093	.....	$9,279	.....	$128,749	.....	$161,464	.....	$122,583
Boots and shoes.....*pairs*	8,780	29,306	8,584	26,994	74,759	197,060	111,045	272,688	78,606	217,877
Other rubber goods	.....	4,358	.....	5,935	.....	40,449	.....	46,036	.....	79,411
Totals	.....	$55,757	.....	$42,208	.....	$366,258	.....	$480,188	.....	$419,871
To Hawaii—										
Belting, hose and packing	.....	$7,541	.....	$5,088	.....	$90,952	.....	$88,766	.....	$104,221
Tires—										
For automobiles	.....	50,219	.....	57,043	.....	523,793	.....	735,786	.....	1,082,331
Other tires	.....	4,069	.....	5,062	.....	86,086	.....	85,934	.....	81,682
Other rubber goods	.....	18,818	.....	14,743	.....	90,660	.....	195,001	.....	226,464
Totals	.....	$80,647	.....	$81,936	.....	$791,491	.....	$1,105,487	.....	$1,494,698

*Beginning November 1. †July 1 to October 31.

	June.				Twelve Months Ended June 30.					
	1917.		1918.		1916.		1917.		1918.	
MANUFACTURED—										
To Philippine Islands—	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Belting, hose and packing..	.....	$10,043	.....	$24,228	.....	$57,686	.....	$63,697	.....	$150,092
Boots and shoes.....*pairs*	26,425	18,045	2,518	1,995	28,140	22,681	288,646	200,376	256,069	179,044
Tires	.....	19,886	.....	61,345	.....	422,918	.....	446,186	.....	1,018,782
Other rubber goods..... ..	.....	14,130	.....	13,051	.....	247,023	.....	114,395	.....	183,840
Totals	.....	$62,104	.....	$100,619	.....	$750,308	.....	$824,654	.....	$1,531,758
To Porto Rico—										
Belting, hose and packing..	.....	$5,376	.....	$6,816	.....	$42,539	.....	$52,118	.....	$50,367
Tires—										
For automobiles	.....	55,278	.....	52,723	.....	403,530	.....	584,732	.....	772,650
Other tires	.....	1,864	.....	120	.....	30,462	.....	8,717	.....	14,803
Other rubber goods..... ..	.....	11,325	.....	13,072	.....	74,975	.....	104,563	.....	116,595
Totals	.....	$73,843	.....	$72,731	.....	$551,506	.....	$750,130	.....	$954,415

THE MARKET FOR RUBBER SCRAP.

Copyright, 1918.

NEW YORK.

THE market for rubber scrap has, during the last month, remained very inactive. The dealers do not feel that there is a sufficient margin of profit in transactions at present prices, while the reclaimers see no reason for bidding higher than the current quotations. So everything is practically at a standstill. The few trifling changes that we note can hardly be considered as indicating what will happen shortly, and yet we believe that the stagnancy which has characterized the situation for some time will not last much longer. A break in the dullness would be welcomed.

BOOTS AND SHOES.—A slight demand was reported at 8¼ to 8½ cents instead of the previous quotation of 8⅛ to 8¼ cents. The increase was too small to stimulate a willingness to sell.

INNER TUBES.—Neither buyers nor sellers have shown the smallest interest. Prices remain unchanged.

MECHANICALS.—No demand to record. Insulated wire stripping fell one-half cent. Other quotations remain unchanged.

TIRES.—Prices continued to drop, except for white and mixed tires, each of which increased one-quarter cent. Transactions were negligible.

STATISTICS.—The London and Liverpool imports of waste and reclaimed rubber for August were only 1,000 pounds, while the exports were 635,800 pounds, value £19,471.

NEW YORK QUOTATIONS FOR CARLOAD LOTS DELIVERED.

OCTOBER 26, 1918.

Prices subject to change without notice.

BOOTS AND SHOES.			
Arctic tops	*lb.*	$0.01½ @	.01¾
Boots and shoes	*lb.*	.08¼ @	.08½
Trimmed arctics	*lb.*	.07 @	.07⅛
Untrimmed arctics	*lb.*	.06 @	.06¼
HARD RUBBER.			
Battery jars, black compound	*lb.*	.02 @	
No. 1, bright fracture	*lb.*	.25 @	.26
INNER TUBES.			
No. 1, old packing	*lb.*	.22 @	.22½
new packing	*lb.*	.24 @	.24½
No. 2	*lb.*	.11½ @	.11¾
Red	*lb.*	.11¼ @	.11⅜
MECHANICALS.			
Black scrap, mixed, No. 1	*lb.*	.05¼ @	
No. 2	*lb.*	.04 @	
Car springs	*lb.*	.05 @	
Heels	*lb.*	.04 @	
Horse-shoe pads	*lb.*	.04 @	
Hose, air-brake	*lb.*	.05½ @	.05¾
fire, cotton lined	*lb.*	.02½ @	
garden	*lb.*	.02⅛ @	
Insulated wire stripping, free from fiber	*lb.*	.04 @	
Matting	*lb.*	.01½ @	
Packing	*lb.*	.01½ @	
Red scrap, No. 1	*lb.*	.09½ @	.10
No. 2	*lb.*	.06 @	.06½
White scrap, No. 1	*lb.*	.12 @	.12¼
No. 2	*lb.*	.09 @	
TIRES.			
Pneumatic—			
Auto peelings, No. 1	*lb.*	.09¼ @	
No. 2	*lb.*	.06½ @	.06¾
Bicycle	*lb.*	.04½ @	
Standard white auto	*lb.*	.05½ @	
Standard mixed auto	*lb.*	.05 @	
Stripped, unguaranteed	*lb.*	.04 @	
White, G. & G.	*lb.*	.05¼ @	
M. & W. and U. S.	*lb.*	.05¼ @	
Solid—			
Carriage	*lb.*	.05¼ @	
Irony	*lb.*	.02 @	
Truck	*lb.*	.05¼ @	

THE MARKET FOR COTTON AND OTHER FABRICS.

Copyright 1918.

NEW YORK.

WHILE conferences have been held for the purpose of agreeing on a price-fixing plan for American cotton, no definite policy has been announced. A study of actual costs of raising cotton was recently made by the American Exchange National Bank of New York City, the condensed results being as follows: Alabama, 20 cents; Arkansas, 23½ cents; Georgia, 21 cents; Louisiana, 18 cents; Mississippi, 25 cents; North Carolina, 24 cents; Oklahoma, 17½ cents; South Carolina, 16 cents; Tennessee, 26 cents; Texas, 17½ cents.

Although the market shows a decline since last month, the technical position of the commodity is said to be strong at this writing. On September 26 there was considerable activity among buyers due to predictions of frosts in Texas and middling uplands spot advanced to 32.40 cents, compared with 35.15 cents a month ago. The market closed October 30 at 30.75 cents.

EGYPTIAN COTTON.—The British Board of Trade announces that prices on orders placed with the Egyptian Cotton Control Commission or with Alexandria export houses shall be those ruling for each government type at the time the order is registered, provided the quantity does not exceed the amount allocated to the buyer.

The Egyptian Cotton Control Commission is authorized to charge 1½ per cent on the free on board prices of each type of cotton when orders are sent direct to them. If placed with the Commission through Alexandria export houses the commission will be paid to the house employed.

The 1918 crop conditions, while favorable at this time, will not equal last year's production, due to the decrease in acreage. The following are the planting percentages:

	1918.	1917.	1916.
Sakellarides	72.4	67.5	63.4
Ashmouni (Upper)	20.9	22.0	20.8
Afifi-Assili-Nubari	5.9	10.0	13.9
Abassi-Joanovich-Various	0.8	0.5	1.9
	100.0	100.0	100.0

SEA ISLAND COTTON.—Southern markets have been generally quiet as farmers refuse to sell unless they can obtain an equivalent of 70 cents cost insurance freight, for Extra Choice and Fancy. The growers' report is convincing evidence that this year's crop will be very small. Up to October 18, only 9,789 bales have been ginned compared with 43,691 bales last year.

DRILLS, DUCK, OSNABURGS AND SHEETINGS.—These materials are under government control at fixed prices ruling until November 16. Deliveries to the Government of the new raincoat cloth—39-inch and 64-68-inch, 4.00-yard sheeting—are extended through to the end of January.

TIRE FABRICS.—The market is quiet and inquiries are few and far between. Fabric mills are busy on government orders running to next spring. Prices are unchanged.

NEW YORK QUOTATIONS.

OCTOBER 26, 1918.

Prices subject to change without notice.

AIRPLANE AND BALLOON FABRICS:

Wamsutta, S. A. I. L. No. 1, 40-inch	*yard*	None
No. 4, 38½-inch		*$0.45 @

ASBESTOS CLOTH:

Brake lining, 2½ lbs. sq. yd., brass or copper insertion	*lb.*	.85 @
2¼ lbs. sq. yd., brass or copper insertion	*lb.*	.90 @

BURLAPS:

32— 7-ounce	*100 yards*	13.50 @
32— 8-ounce		13.70 @
40— 7½-ounce		14.85 @
40— 8-ounce		15.00 @
40—10-ounce		17.20 @
40—10½-ounce		17.50 @
45— 7½-ounce		None
45— 8-ounce		None
45— 9½-ounce		19.00 @
48—10-ounce		19.30 @

DRILLS:

37-inch 2.35-yard	*yard*	†.25
37-inch 3.25-yard		†.20½
37-inch 2.60-yard		†.23

THREE-LEAF WIDE:

40-inch 3.96-yard	*yard*	†.18
40-inch 2.40-yard		†.25⅝
52-inch 1.90-yard		†.32½
58-inch 1.60-yard		†.37¾
59-inch 1.85-yard		†.34⅜
59-inch 1.94-yard		†.33¼

TIRE FABRICS

JENCKES SPINNING COMPANY

PAWTUCKET RHODE ISLAND

DUCK:

CARRIAGE CLOTH:

38-inch 2.00-yard enameling	*basis per pound*	†.62
46½-inch 1.44-yard		†.61
51½-inch 1.35-yard		†.61
56½-inch		†.62
61-inch		†.63
72-inch		†.64

MECHANICAL:

Hose	*pound*	†.62¼
40-inch, 10-ounce		†.64¾
Belting		†.62¾

HOLLANDS, 40-INCH:

Acme	*yard*	*.30 @
Endurance	*yard*	*.33 @
Penn	*yard*	*.34 @

OSNABURGS (PART WASTE):

29½-inch 3.33-yard	*yard*	†.16¼
30-inch 7-ounce		†.22¼
30-inch 8-ounce		†.25¼

RAINCOAT FABRICS:

COTTON:

Bombazine 64 x 60 water-repellent	*yard*	*.23 @
60 x 48 not water-repellent		*.20½ @
Cashmeres, cotton and wool, 36-inch, tan		.85 @
blue and black		.90 @
Twills 64 x 72		*.30 @ .32½
64 x 102		*.35 @ .37½
Twill, mercerized, 36-inch, tan and olive		.34½ @
blue and black		.35½ @
Tweed		.45 @ 1.00
Tweed, printed		.18½ @ .25
Plaids 60 x 48		*.21½ @
56 x 44		*.20½ @
Repp		.37½ @ .45
Surface prints 60 x 48		*.21½ @
64 x 60		*.23½ @

IMPORTED WOOLEN FABRICS SPECIALLY PREPARED FOR RUBBERIZING —PLAIN AND FANCIES:

63-inch, 3¼ to 7½ ounces	*yard*	1.15 @ 3.25
36-inch, 2¼ to 5 ounces		.80 @ 1.85

IMPORTED PLAID LINING (UNION AND COTTON):

63-inch, 2 to 4 ounces	*yard*	.90 @ 1.70
36-inch, 2 to 4 ounces		.32½ @ 1.05

DOMESTIC WORSTED FABRICS:

36-inch, 4½ to 8 ounces	*yard*	.75 @ 2.00

DOMESTIC WOVEN PLAID LININGS (COTTON):

36-inch, 3¼ to 5 ounces	*yard*	.27½ @ .50

SHEETINGS:

40-inch 2.35-yard	*yard*	†.25
40-inch 2.50-yard		†.23¾
40-inch 2.70-yard		†.22¼
40-inch 2.85-yard		†.21⅛
40-inch 3.15-yard		†.22¾
40-inch 3.75-yard		†.17⅞

JACKET:

Delaware	*yard*	*.30 @
Schuylkill	*yard*	*.35 @

SILKS:

Canton, 38-inch	*yard*	.39 @
Plain		.40 @
Schappe, 36-inch		.52½ @

STOCKINETTES:

COTTON, 52-INCH:

D—14-ounce	*yard*	*.85 @ .90
E—11½-ounce		*.60 @ .65
F—14-ounce		*.85 @ .90
G— 8-ounce		*.75 @ .80
H—11-ounce		*.70 @ .85
I— 9-ounce		*.60 @ .65
Knitaback	*pound*	*1.75 @ 2.00

WOOL, 52-INCH:

A—14-ounce	*yard*	*1.75 @
B—14 ounce		*2.25 @
C—14-ounce		*2.50 @

TIRE FABRICS:

17½-ounce Sea Island, combed	*square yard*	1.60 @ 1.70
17¼-ounce Egyptian, combed		1.30 @ 1.40
17½-ounce Egyptian, carded		1.20 @ 1.30
17½-ounce Peelers, combed		1.10 @ 1.15
17¼-ounce Peelers, carded		1.00 @ 1.05

*Nominal.
†Government prices until November 16, 1918.

SEA ISLAND COTTON CROP MOVEMENT.

FROM AUGUST 1, 1918, TO SEPTEMBER 27, 1918.

	Receipts. 1918-19.	1917-18.
Stock on hand, August 1, 1918—		
Savannah, 15,247; Charleston, 517 ..... *bales*	15,764	1,044
Received at Savannah (gross)	307	1,632
Received at Charleston	120	.....
Received at Jacksonville	432	1,313
Received at Brunswick	.....	.....
Received at Norfolk	.....	.....
Totals	16,623	3,989
Less exports	5,246	1,646
Stock September 27, 1918—		
Savannah, 10,965; Charleston, 412	11,377	2,348
Crop in sight at all ports to date	859	2,945

EXPORTS.

From—	To Great Britain.	South. Mills.	North. Mills.	Total.
Savannah	144	3,995	450	4,589
Charleston	....	225	.....	225
Jacksonville	....	432	.....	432
Brunswick	....	.....	.....	.....
Norfolk	....	.....	.....	.....
Totals	144	4,652	450	5,246
1917-18	.....	1,468	178	1,646
	[1]144	[1]3,184	[1]272	[1]3,600

[1] Increase.

(*Compiled by John Malloch & Co., Savannah, Georgia.*)

EGYPTIAN COTTON CROP MOVEMENT.

FROM AUGUST 1, 1918, TO JULY 31, 1918.

To—	1917-1918.	1916-1917.	1915-1916.
Liverpool ..... *bales*	225,253	214,726	216,382
Manchester	120,715	134,358	139,268
Other United Kingdom ports	137,761	.....	.....
Total shipments to Great Britain	483,729	349,084	355,650
To—			
France 29,946	39,517	39,743	60,972
Spain 9,571			
Italy 32,249	38,776	52,691	54,479
Switzerland 6,527			
Russia	.....	31,731	42,920
Greece	2,862	65	785
Total shipments to Continent	81,155	124,230	159,156
To—			
United States	75,420	127,176	194,229
India	16,214	11,555	25,365
Japan 16,214			
Total shipments to all ports	656,518	612,045	734,400
Total crop (interior gross weight), cantars[1]	.....	5,126,199	4,726,518

[1] Cantar equals 98 pounds.

(*Compiled by Davies, Benachi & Co.*)

THE MARKET FOR CHEMICALS AND COMPOUNDING INGREDIENTS.

Copyright, 1918.

NEW YORK.

LACK of interest in base metals characterized the market. There will probably be no change in the price of copper after November 1, although one had been expected. Tin is inactive and it is reported that fixed prices will probably not be announced. Government consumption of lead continues heavy, its general distribution being under strict control. There has been a slight decline in antimony.

The market for rubber chemicals has been quiet due to the Liberty Loan, peace talk, and influenza. Prices have held firm with a tendency toward higher prices for aluminum flake, barytes, lithopone, etc., due to higher cost of labor, freight and other things. Trade should open up in the near future, except in certain lines under government regulation.

ANILINE OIL.—A continuous demand is depleting the available stocks, so the undertone is firm.

BARYTES.—Twice as much as the present consumption was the average, but, in spite of that, increased prices are expected on account of the higher costs of production.

CARBON TETRACHLORIDE.—By its control of chlorine and its products the Government now regulates business in this commodity. There is little to be had.

LITHOPONE.—Lack of cars and of labor is giving trouble to the manufacturers, who can easily sell all that they can produce. Prices remain unchanged.

SULPHUR FLOUR.—Prices for delivery after January 1 have not been quoted, but it is thought that they may be a trifle lower.

SULPHURIC ACID.—There is the keenest demand for what little is obtainable, as the Government regulates not only the production but the distribution. The new price schedules are now applicable.

TALC.—The demand is fair, but producers find it hard to meet it, owing to lack of labor. Spot deliveries are at a small premium.

TAR AND PITCH.—Tar has advanced 25 cents a barrel. Demand, chiefly for government needs, is strong, and the stocks are small.

WHITING.—Producers seem to find it difficult to provide firms doing work for the Government with the quantities they need. Other concerns must be satisfied with what they can secure. Prices are unchanged.

ZINC OXIDE.—The demand is better than for other pigments, government requirements are increasing. No change in price.

NEW YORK QUOTATIONS.

OCTOBER 26, 1918.

Prices subject to change without notice.

ACCELERATORS, ORGANIC.				
Accelerator N. C. C	*lb.*	*.50	@	
Accelerene	*lb.*	*$2.62	@	
Accelemal	*lb.*	*.80	@	
Accelemal No. 2	*lb.*	*.80	@	
Accelerator No. 1	*lb.*	*.60	@	
Aldehyde ammonia crystals	*lb.*	1.00	@	1.10
Aniline oil	*lb.*	.31	@	
Annex	*lb.*	1.25	@	
Duplex	*lb.*	.75	@	
Excellerex	*lb.*	.85	@	
Hexamethylenexamine (Vitalin)	*lb.*	.65	@	
Hexamethylene tetramine (powdered)	*lb.*	1.05	@	1.20
Paraphenylenediamine	*lb.*	3.50	@	4.00
Tensilite	*lb.*	.60	@	
Thiocarbanilide	*lb.*	*.50	@	
Velocite	*lb.*	.50	@	
Vitaminex	*lb.*	.65	@	
ACCELERATORS, INORGANIC.				
Lead, dry red	*lb.*	.11¼	@	
sublimed blue	*lb.*	.09¼	@	
sublimed white	*lb.*	.09¼	@	
white, basic carbonate	*lb.*	.10	@	
white, basic sulphate	*lb.*	.09¼	@	.09½
Lime, flour	*lb.*	.02	@	.02½
Litharge, domestic	*lb.*	.10¾	@	
English	*lb.*	.15	@	.16
sublimed	*lb.*	.11	@	
Magnesium, carbonate	*lb.*	*.12	@	
calcined, heavy (Thistle brand)	*lb.*	.12	@	
light (Manhattan brand)	*lb.*	.45	@	
Magnesium oxide	*lb.*	.06½	@	
Magnesite, calcined, powdered	*ton*	50.00	@	65.00
ACIDS.				
Acetic, 28 per cent (bbls.)	*cwt.*	4.91	@	5.16
Glacial, 99 per cent (carboys)	*cwt.*	19.50	@	19.75
Cresylic, 97-99 per cent, straw color	*gal.*	1.12	@	
95 per cent, dark	*gal.*	1.02	@	
Muriatic, 20 degrees	*cwt.*	2.05	@	2.30
Nitric, 36 degrees	*cwt.*	6.60	@	6.85
Sulphuric, 66 degrees	*ton*	25.00	@	
ALKALIES.				
Caustic soda, 76 per cent (bbls.)	*lb.*	.08	@	
Soda ash (bbls.)	*lb.*	.04½	@	
COLORS.				
Black:				
Bone, powdered	*lb.*	.05	@	
granulated	*lb.*	.09	@	
Carbon, black (sacks, factory)	*lb.*	.14	@	
Ivory black	*lb.*	.16	@	.30
Lampblack	*lb.*	.15	@	.45
Oil soluble aniline	*lb.*	*.75	@	1.50
Rubber black	*lb.*	.06	@	
Blue:				
Cobalt	*lb.*	.25	@	.35
Prussian	*lb.*	1.25	@	
Ultramarine	*lb.*	.22	@	.50
Brown:				
Iron oxide	*lb.*	.03	@	
Ochre, domestic	*lb.*	.02	@	.04
imported	*lb.*	.05	@	.06
Sienna, Italian, raw and burnt	*lb.*	.07	@	.14
Umber, Turkey, raw and burnt	*lb.*	.05	@	.06

Green:			
Chrome tile	lb.	*.15	@
Oxide of chromium (casks)	lb.	*.85	@
India rubber	lb.	*.75	@
Red:			
Antimony, crimson, sulphuret of (casks)	lb.	.50	@
crimson, "Mephisto" (casks)	lb.	.60	@
Antimony, golden, sulphuret of	lb.	.25	@
golden, "Mephisto" (casks)	lb.	.30	@
golden, sulphuret, States brand, 16-17%	lb.	.28	@
red sulphuret, States brand	lb.	.25	@
vermilion sulphuret	lb.	.55	@
Arsenic, red sulphide	lb.	.42	@
Indian, pure bright	lb.	.08	@ .12
Iron oxide, reduced grades	lb.	.12	@
pure bright	lb.	.15	@ .17
Oil soluble aniline, red	lb.	*2.50	@ 3.00
orange	lb.	*2.00	@
Oxymony	lb.	.19	@
Venetian	lb.	.02½	@ .06
Vermilion, English, pale, medium, dark	lb.	2.00	@ 2.10
White:			
Aluminum bronze powder	lb.	.80	@
C. P. (cases)	lb.	1.00	@
superior	lb.	1.25	@
Lithopone, imported	lb.	None	
domestic	lb.	.08	@ .08¼
Ponolith (carloads, factory)	lb.	*.07½	@ .08
Rubber makers' white	lb.	.08	@ .08¼
Zinc oxide, Horsehead (less carload, factory):			
"XX red"	lb.	.10½	@
"Special"	lb.	.11	@
French process, red seal	lb.	.13¼	@
green seal	lb.	.13¼	@
white seal	lb.	.14¼	@
(States brand)	lb.	.12	@
Zinc sulphide, pure	lb.	None	
Yellow:			
Cadmium, tri-sulphate	lb.	*2.68	@
sulphide	lb.	*2.00	@
Chrome, light and medium	lb.	.28	@ .32
India rubber	lb.	*1.00	@
Ochre, light or dark	lb.	*.02½	@
Oil soluble aniline	lb.	*2.00	@
Zinc chromate	lb.	*.50	@

COMPOUNDING INGREDIENTS.

Aluminum flake (bbls. factory. Less 5% carload)	ton	29.00	@
(sacks factory. Less 5% carloads)	ton	26.00	@
Aluminum oxide	lb.	*.18	@
Ammonia carbonate, powdered	lb.	.14	@ .14½
lumps	lb.	.12½	@ .13
Asbestine (bags)	ton	*22.50	@25.00
Asbestos (bags)	ton	*25.00	@35.00
Barium, carbonate, precipitated	ton	60.00	@
sulphide, precipitated	lb.	.08½	@
Barytes, pure white	ton	35.00	@
off color	ton	20.00	@25.00
uniform floated	ton	35.00	@
Basofor	lb	.05½	@
Blanc fixe	lb.	*.05½	@ .06
Bone ash	lb.	.06	@
Chalk, precipitated, extra light	lb.	.05	@ .05¼
precipitated, heavy	lb.	.04	@ .04½
China clay, domestic	ton	15.00	@22.00
Cotton linters, clean mill run, f. o. b. factory	bale	None	
Fossil flour	ton	50.00	@60.00
Glue, high grade	lb.	.36	@ .45
medium	lb.	.31	@ .35
low grade	lb.	.14	@ .20
Graphite, flake (400 pound bbl.)	lb.	.10	@ .25
amorphous	lb.	.04	@ .08
Ground glass FF. (bbls.)	lb.	*.03	@
Infusorial earth, powdered	ton	50.00	@
bolted	ton	60.00	@
Mica, powdered	lb.	.05	@ .06
Plaster of Paris	lb.	2.00	@ 3.00
Plastigum	lb.	.15	@
Pumice stone, powdered (bbl.)	lb.	.04	@ .08
Rotten stone, powdered	lb.	.02½	@ .04½
Rubber flux	lb.	*.15	@
Rubhide	lb.	*.38	@
Silex (silica)	ton	22.00	@40.00
Soapstone, powdered, domestic	ton	15.00	@25.00
imported	ton	None	
Starch, powdered corn (carload, bbls.)	cwt.	4.52	@
(carload, bags)	cwt.	4.30	@
Talc, American	ton	20.00	@40.00
French	ton	None	
Tripoli earth, powdered	ton	50.00	@
bolted	ton	60.00	@
Tyre-lith	ton	70.00	@
Walpole rubber flux (factory)	lb.	.06	@
Whiting, Alba (carloads)	cwt.	.90	@ 1.00
commercial	cwt.	1.25	@
gilders	cwt.	1.30	@ 1.35
Paris, white, American	cwt.	1.50	@ 1.75
English cliffstone	cwt.	1.75	@ 2.75
Wood pulp XXX	ton	*40.00	@45.00

MINERAL RUBBER.

Gilsonite	ton	55.00	@
Genasco (carloads factory)	ton	55.00	@57.00
M. R.	ton	*65.00	@
M. R. X	ton	100.00	@
Liquid rubber	lb.	*.14	@ .15
Pioneer, carload, delivered	ton	55.00	@
less carload, factory	ton	60.00	@
Richmond	ton	75.00	@
No. 64	ton	65.00	@
Refined Elaterite	ton	175.00	@
Raven M. R.	lb.	.02½	@ .85

OILS.

Corn, crude	lb.	.18½	@
refined	lb.	.21½	@
Glycerine (C. P. drums)	lb.	.58	@ .59
Glycerole	lb.	.12	@
Linseed, raw (carloads)	gal.	1.50	@
Linseed compound	gal.	.85	@
Palm	lb.	.32	@ .50
Paraffin	gal.	.40	@ .41
Petrolatum	lb.	.08	@
Petroleum grease	lb.	.06½	@
Pine, steam distilled	gal.	.60	@
Pine tar	gal.	.37	@
Rapeseed, refined	gal.	1.85	@
blown	lb.	.23¼	@
Rosin	gal.	.66	@
Soya bean, crude	lb.	.18½	@
Tar (cases)	gal.	.35	@ .36

SOLVENTS.

Acetone (drums)	lb.	.25½	@ .25¼
methyl (bbls.)	gal.	1.50	@
Benzol, C. P. (drums)	gal.	.28½	@
90 per cent.	gal.	.22	@ .27
Beta-naphthol, resublimed	lb.	1.10	@
ordinary grade	lb.	.70	@
Halowax oil No. 1000 (f. o. b. Wyandotte)	lb.	*.30	@
No. 1001 (f. o. b. Wyandotte)	lb.	*.35	@
Naphtha, motor gasoline (steel bbls.)	gal.	.24½	@
73 @ 76 degrees (steel bbls.)	gal.	None	
68 @ 70 degrees (steel bbls.)	gal.	None	
V. M. & P. (steel bbls.)	gal.	.23½	@
Toluol, pure	gal.	1.55	@
Turpentine, spirits	gal.	.67	@ .67½
wood	gal.	.58	@ .64
Venice	lb.	*.65	@ .66
Osmaco reducer	gal.	.35	@
Zylol, pure	gal.	.45	@ .50
commercial	gal.	.30	@ .35

SUBSTITUTES.

Black	lb.	.11	@ .18
White	lb.	.13	@ .25
Brown	lb.	.18	@ .24
Brown factice	lb.	.10	@ .23
White factice	lb.	.14	@ .24
Cordex	lb.	.45	@
Energine	lb.	.30	@
Paragol soft and medium (carloads)	cwt.	17.08	@
hard	cwt.	16.58	@
Toughenite	lb.	.40	@

VULCANIZING INGREDIENTS.

Carbon, bisulphide (drums)	lb.	.07½	@ .10
tetrachloride (drum)	lb.	.50	@ .60
Lead, black hyposulphite (Black Hypo)	lb.	None	
Orange mineral, domestic	lb.	.14¼	@
Sulphur chloride (drums)	lb.	*.07½	@ .08
Sulphur, flour, Brooklyn brand (carloads)	cwt.	3.90	@
pure soft (carloads)	cwt.	3.40	@
superfine (carloads, factory)	cwt.	2.75	@

(See also Colors—Antimony)

RESINS AND PITCHES.

Cantella gum	lb.	.70	@
Pine tar, retort	bbl.	15.50	@
kiln	bbl.	14.50	@
Pitch, Burgundy	lb.	.08	@
coal tar	lb.	.01½	@
pine tar	lb.	.02¼	@
ponto	lb.	.14	@
Resin, Pontianak, refined	lb.	None	
granulated	lb.	None	
fused	lb.	None	
Rosin, K	lb.	.06	@
powdered	lb.	.10	@
Shellac, fine orange	lb.	*.78	@ .82
Tar, kiln	bbl.	13.00	@13.50
retort	bbl.	14.00	@14.50

WAXES.

Wax, beeswax, white	lb.	.63	@ .65
ceresin, white	lb.	.20	@ .21
carnauba	lb.	.64	@ .95
ozokerite, black	lb.	.60	@ .61
green	lb.	None	
montan	lb.	.35	@ .36
substitute	lb.	*.23	@ .25
paraffin, crude 118/120 m. p. (cases)	lb.	.13	@
123/125 m. p. (cases)	lb.	.13½	@
refined 128/130 m. p. (cases)	lb.	.15	@
133/136 m. p. (cases)	lb.	None	

*Nominal.

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